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19 Apr 2006

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Dear Ms. Lee and Ms. Constantinescu:

I am pleased to submit to you the *Draft Site 1 Landfill 2005 Annual Report* for the former Naval Air Station (NAS) Moffett Field, Moffett Field, California. Please provide any comments by 19 May 2006. If you have any questions, please contact Mr. Wilson Doctor at (619) 532-0928 or me at (619) 532-0952.

Sincerely,

*"Signature on file"*

RICK WEISSENBORN  
BRAC Environmental Coordinator  
By direction of the Director

Enclosure: 1. *Draft Site 1 Landfill 2005 Annual Report* dated April 19, 2006

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**Base Realignment and Closure  
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**DRAFT  
SITE 1 LANDFILL  
2005 ANNUAL REPORT  
April 19, 2006**

**FORMER NAVAL AIR STATION MOFFETT FIELD  
MOFFETT FIELD, CALIFORNIA**

Base Realignment and Closure  
Program Management Office West  
1455 Frazee Road, Suite 900  
San Diego, California 92108

CONTRACT No. ~~N68711-98-D-5713~~  
CTO No. 0086

**DRAFT**  
**SITE 1 LANDFILL 2005 ANNUAL REPORT**  
**April 19, 2006**

**FORMER NAVAL AIR STATION MOFFETT FIELD  
MOFFETT FIELD, CALIFORNIA**

**DCN: FWSD-RAC-06-0663**



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## ABBREVIATIONS AND ACRONYMS

µg/L	micrograms per liter
µmhos/cm	micromhos per centimeter
°C	degrees Celsius
bgs	below ground surface
BHC	benzene hexachloride
CCL	calculated concentration limit
COC	constituent of concern
DEH	Santa Clara County Department of Environmental Health
DO	dissolved oxygen
DUP	duplicate sample
EPA	United States Environmental Protection Agency
ft	feet
ft/ft	foot per foot
GS	ground surface
GV	gas vent
J	estimated value
LGMW	landfill gas monitoring well
LTMP	Final Site 1 Landfill Post-Closure Long-Term Monitoring Plan
Maintenance Plan	Final Site 1 Landfill Post-Closure Long-Term Maintenance Plan
MDL	method detection limit
mg/L	milligrams per liter
Moffett	former Naval Air Station Moffett Field
MP	monitoring parameter
msl	mean sea level
mV	millivolts
NAD	North American Datum
NAS	Naval Air Station
NASA	National Aeronautics and Space Administration
NGVD	National Geodetic Vertical Datum
NTU	nephelometric turbidity unit

## ABBREVIATIONS AND ACRONYMS

(Continued)

ORP	oxidation reduction potential
OU1	Operable Unit 1
pH	hydrogen (ion) concentration
ROD	Record of Decision
SQL	sample quantitation limit
SVOC	semivolatile organic compound
Tech Memo	Final Technical Memorandum, Site 1 Groundwater Evaluation Process
ToC	top of casing
TtFW	Tetra Tech FW, Inc.
U	analyte not detected above method reporting limit
USFWS	United States Fish and Wildlife Service
VOC	volatile organic compound

## EXECUTIVE SUMMARY

This document summarizes the 2005 monitoring and maintenance activities conducted at the Site 1 Landfill and presents the results of evaluating the post-closure groundwater monitoring data collected at the Site 1 Landfill in 2005. The content of this report meets the requirements of the *Moffett Federal Airfield Final Operable Unit 1 Record of Decision* and the Title 27 California Code of Regulations, Subchapter 3. The Site 1 Landfill is located at the northern end of the former Naval Air Station Moffett Field, located near Mountain View, California.

Depth-to-groundwater measurements, groundwater sampling, and methane monitoring were conducted at the Site 1 Landfill in April and October 2005 in accordance with the *Final Site 1 Landfill Post-Closure Long-Term Monitoring Plan* issued in March 2005. Groundwater samples were collected from nine monitoring wells, as well as from collection trench well W1-22. Collection trench well W1-23 could not be sampled due to insufficient water. The analytical monitoring parameters (MPs) include selected metals, volatile organic compounds (VOCs), pesticides, and semivolatile organic compounds (SVOCs).

SVOCs and mercury were analyzed in supplemental groundwater sampling events in January and March 2005 because SVOCs and mercury were not analyzed historically at Site 1. SVOCs and mercury were not detected in these sampling events. Water level measurements also were taken during these supplemental sampling events.

Depth to groundwater measurements were collected from Site 1 Landfill monitoring wells, piezometers, and collection trench wells on January 31, March 7, April 11, and October 3, 2005. The groundwater elevations were similar to previous years. The groundwater flows from north to south at the Site 1 Landfill. The water levels in monitoring well pairs generally show upward potential. Most monitoring wells had seasonal high water levels in March 2005 and seasonal low water levels in October 2005. The seasonal water level fluctuation was on the order of approximately 1 foot.

MP analytical results of 2005 groundwater sampling at Site 1 were evaluated in accordance with the procedures provided in the *Final Technical Memorandum, Site 1 Groundwater Evaluation Process* (Tech Memo) issued in April 2004. The Tech Memo provided calculated concentration limits (CCLs) for the MPs that were developed based on ecological screening criteria and site-specific attenuation factors for the groundwater. These CCLs are used as initial screening criteria in the groundwater evaluation.

During 2005, no reported VOC or SVOC MP concentrations were greater than the applicable CCLs. Barium concentrations were greater than the applicable CCL in samples from every

monitoring well during both semiannual sampling events in 2005. However, the exceedances were less than historical background levels. Therefore, there was no release from the landfill. Heptachlor was also detected at a concentration greater than the applicable CCL during the April 2005 sampling event. However, the detection was in a sample from a background monitoring well and there was no release from the landfill.

As part of landfill monitoring activities, methane monitoring was conducted for 19 passive gas vent wells within the Site 1 Landfill and 4 landfill gas monitoring wells on the perimeter of the landfill. Methane monitoring was also performed at the perimeter of the site at 150-foot intervals at 21 locations. In general, the percentages of methane gas concentrations within the landfill were lower in October 2005 than in April 2005 and were similar to historical concentrations. None of the perimeter wells showed concentrations of methane above the Title 27 concentration limit of 5 percent (all readings were zero percent). Methane was not detected at any of the perimeter monitoring locations in April or October 2005.

Maintenance activities were conducted at the Site 1 Landfill during 2005 in accordance with the *Final Site 1 Landfill Post-Closure Long-Term Maintenance Plan* issued in March 2005. These activities included inspection and repair, as required, of the landfill cover (including cutting the grass and the weeds), the raptor perches, landfill gas vents and monitoring wells, groundwater monitoring wells, piezometers, collection trench wells, and stormwater runoff controls. Santa Clara County Department of Environmental Health inspected Site 1 quarterly in 2005. No problems or deficiencies were identified.



## 1.0 INTRODUCTION

This document summarizes the 2005 monitoring and maintenance activities conducted at the Site 1 Landfill and presents the results of evaluating the post-closure groundwater monitoring data collected at the Site 1 Landfill in 2005. The content of this report meets the requirements of the *Moffett Federal Airfield Final Operable Unit 1 [OU1] Record of Decision [ROD]* and Title 27 California Code of Regulations, Subchapter 3. The Site 1 Landfill is located at the northern end of the former Naval Air Station Moffett Field (Moffett), located near Mountain View, California (Figure 1-1 and Figure 1-2). This report was prepared on behalf of the Base Realignment and Closure Program Management Office West. This work was conducted under Contract Task Order Number 0086, issued under Remedial Action Contract No. N68711-98-D-5713.

The purpose of this Annual Report is to present the results of groundwater monitoring and methane monitoring conducted in 2005 for the detection monitoring program at the Site 1 Landfill. It also includes a description of maintenance conducted at the Site 1 Landfill during 2005. Appendices A through F include field sampling data, analytical data, statistical evaluation, analytical data validation packages, groundwater hydrographs, groundwater monitoring point data graphs, and methane monitoring data graphs.

### 1.1 SITE LOCATION

Moffett is located about 1 mile south of the San Francisco Bay in Santa Clara County, California (see Figure 1-1). Moffett is bounded by United States Fish and Wildlife Service (USFWS) property to the north, Stevens Creek to the west, U.S. Highway 101 to the south, and Lockheed Martin to the east (see Figure 1-2).

The Site 1 Landfill is located in the northernmost portion of Moffett and encompasses approximately 12 acres. The Site 1 Landfill (historically referred to as the Runway Landfill) lies at the north end of the runways between North Perimeter Road, the USFWS property, and the Stormwater Retention Basin (see Figure 1-2).

### 1.2 2005 MONITORING AND MAINTENANCE ACTIVITIES

Monitoring activities conducted in 2005 at Site 1 included depth to groundwater measurements, groundwater sampling, and methane monitoring. Groundwater monitoring at Site 1 was conducted during 2005 in accordance with the *Final Site 1 Landfill Post-Closure Long-Term Monitoring Plan* (LTMP) (Tetra Tech FW, Inc. [TtFW], 2005a). The groundwater evaluation process was conducted in accordance with the *Technical Memorandum, Site 1 Groundwater Evaluation Process* (Tech Memo) (TtFW, 2004), which was finalized in April 2004. Maintenance activities in 2005 at Site 1 were conducted in accordance with the *Final Site 1 Landfill Post-Closure Long-Term Maintenance Plan* (Maintenance Plan) (TtFW, 2005b).

As approved by the regulatory agencies, the sampling frequency and analyses were modified in accordance with the Tech Memo and the LTMP. Groundwater samples were collected semiannually and analyzed for the Site 1 monitoring parameters (MPs). Methane monitoring was conducted in accordance with Section 4 of the LTMP.

Depth to groundwater measurements, groundwater sampling, and methane monitoring were conducted at the Site 1 Landfill in April and October 2005. Groundwater samples were collected from nine monitoring wells and from collection trench well W1-22. Collection trench well W1-23 could not be sampled because of insufficient water. Table 1-1 provides well construction information for all Site 1 monitoring wells. The analytical MPs include selected metals, volatile organic compounds, pesticides, and semivolatile organic compounds (SVOCs).

SVOCs and mercury sampling were conducted as supplemental groundwater sampling events in January and March 2005 because SVOCs and mercury were not analyzed historically at Site 1. Water level measurements also were taken during these supplemental sampling events.

Maintenance activities were conducted at the Site 1 Landfill during 2005 in accordance with the Maintenance Plan. These activities include inspection and repair, as necessary, of the landfill cap, stormwater runoff and control measures, raptor perches, landfill gas vents, perimeter landfill gas monitoring wells, the landfill gas-venting trench and gas vents, collection trench and collection trench wells, and groundwater monitoring wells and piezometers. Site 1 inspections were conducted in January, February, May, August, and November 2005. Inspection checklists and maintenance activities are provided in Appendix G.

Santa Clara County Department of Environmental Health (DEH) also inspects the Site 1 Landfill quarterly. Neither problems nor deficiencies were noted during DEH inspections. The DEH inspection reports are provided in Appendix G.

### **1.3 BASIS OF DATA EVALUATION**

Remedial activities at Moffett are conducted as part of the Installation Restoration Program established by the Department of Defense to identify, evaluate, and control the spread of contaminants from historical hazardous waste sites. The Site 1 Landfill is in OU1. The content of this report meets the requirements stated in the ROD (Navy, 1997) for OU1 and Title 27 California Code of Regulations, Subchapter 3.

The ROD for OU1 (Navy, 1997) summarizes site characteristics and risks, describes and evaluates the remedial alternatives, identifies the selected remedy, and identifies statutory determinations (including compliance with applicable or relevant and appropriate requirements). The major elements of the selected remedy for the Site 1 Landfill are a landfill cap, landfill gas-venting trench, subsurface collection trench, groundwater and methane monitoring, institutional controls, and post-closure maintenance. Remedial actions were completed in November 1998, and methane and groundwater monitoring began in 1999.

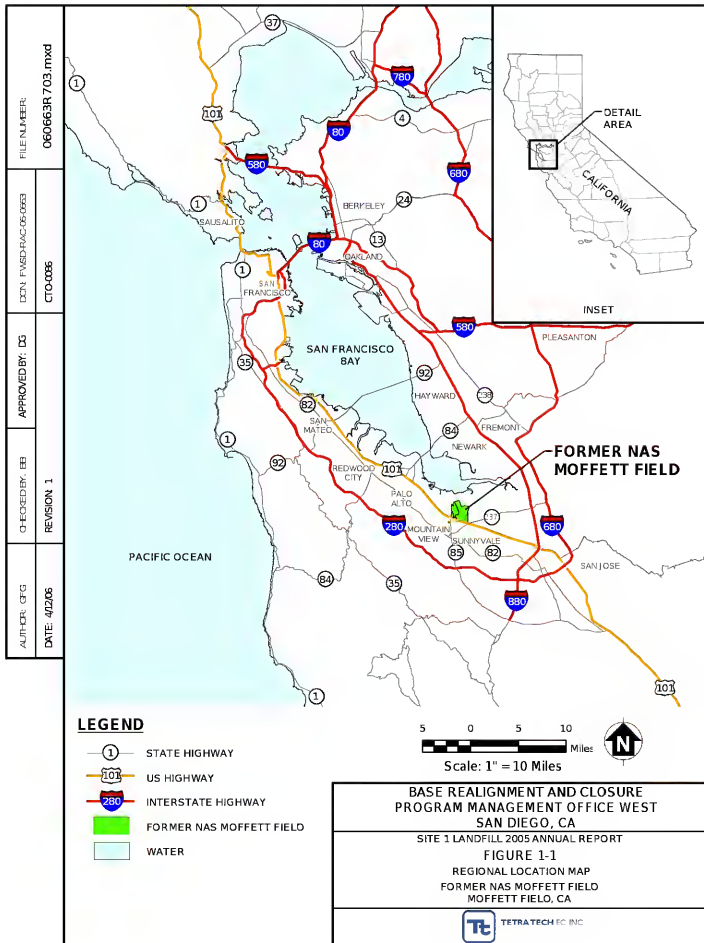




TABLE 1-1

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
WELL CONSTRUCTION INFORMATION  
FORMER NAS MOFFETT FIELD**

Location	Northing (feet)	Easting (feet)	Diameter (inches)	ToC Elevation (feet) <sup>1</sup>	GS Elevations (feet) <sup>1</sup>	Total Well Depth (feet bgs)	Depth of Screen Interval (feet bgs)
W1-1R	1982659.6	6111220.3	4	4.83	2.21	25.5	14.3 - 24.3
W1-5	1983794.1	6110944.4	4	3.02	1.92	21.5	14.5 - 19.5
W1-6	1982637.3	6110949.3	4	-0.56	0.47	34.0	15.0 - 30.0
W1-7	1982901.0	6110315.6	4	0.24	0.04	75.0	40.0 - 70.0
W1-8	1983376.9	6111117.5	4	2.95	1.07	25.0	13.0 - 18.0
W1-12R	1983385.0	6110711.3	4	0.17	0.08	22.0	11.7 - 21.7
W1-14	1982829.9	6110399.9	2	2.46	-0.72	14.1	4.1 - 14.1
W1-15	1982790.0	6110909.9	2	2.60	-0.25	14.4	4.4 - 14.4
W1-16	1982900.5	6111204.4	2	3.82	1.35	15.4	5.4 - 15.4
W1-19	1982709.2	6110545.2	2	1.98	-0.43	19.0	14.0 - 19.0
W1-20	1982767.6	6110817.0	2	2.72	-0.11	19.0	14.0 - 19.0
W1-22 <sup>2</sup>	1983496.9	6110774.9	8	1.12	2.10	7.0	2.5 - 7.0
W1-23 <sup>3</sup>	1983212.8	6110510.7	8	0.83	2.18	7.0	2.5 - 7.0
W1-24	1983156.0	6111212.9	4	4.27	1.88	24.5	6.0 - 16.0
PZ1-18 <sup>3</sup>	1982709.9	6110549.7	2	2.25	-0.29	40.0	30.0 - 40.0
PZ1-21 <sup>3</sup>	1982770.6	6110822.3	2	2.28	-0.13	40.0	30.0 - 40.0

**Notes:**

<sup>1</sup> ToC referenced to survey conducted during November 2002, with the exception of W1-12R and W1-1R, which were surveyed in October 2003 and November 2004, respectively.

<sup>2</sup> W1-22 and W1-23 are collection trench wells and not groundwater monitoring wells.

<sup>3</sup> PZ1-18 and PZ1-21 are piezometers and not groundwater monitoring

Positions were determined using NASA Ames Research Center Control Monument ARC-32, a disc set flush in concrete, 6.5 feet north of northeast edge of pavement (Patrol Road) and 75 feet east of Perimeter Road, and 2.5 feet west of the chain-link fence. Northings and eastings are shown in NAD83, elevations are shown in NGVD29.

Measuring point is recorded from top of well casing.

The screen interval for replacement wells W1-1R and W1-12R are similar to those of the original wells they replaced (within 1 foot of the screen interval for the original wells).

**Abbreviations and Acronyms:**

bgs - below ground surface

GS - ground surface

NAD - North American Datum

NAS - Naval Air Station

NASA - National Aeronautics and Space Administration

NGVD - National Geodetic Vertical Datum

ToC - top of casing

The evaluation of Site 1 groundwater analytical results presented in this report was conducted in accordance with the Tech Memo (TtFW, 2004). The Tech Memo documented the groundwater detection monitoring program, MPs, calculated concentration limits (CCLs), and described the statistical evaluation process for the Site 1 Landfill post-closure monitoring. The MPs are a set of parameters that provide a reliable indication of a release from a landfill. The MPs include physical and analytical parameters that are a subset of the constituents of concern (COCs). The CCLs were developed based on ecological screening criteria and site-specific attenuation factors for the groundwater. These CCLs are used as initial screening criteria in the groundwater evaluation. If analytical results are less than the CCLs, then no additional evaluation is required, and there is no release from the landfill. If CCLs are exceeded, then additional evaluation of upgradient (background) and downgradient data is conducted to determine whether there has been a release from the landfill. Appendices A and B of this document contain the field sampling data and analytical summary and CCL evaluation tables.

## 1.4 REPORT ORGANIZATION

This report is divided into the following sections:

- **Section 1.0: Introduction**, presents the site location, monitoring and maintenance activities, the basis of the data evaluation, and the report organization.
- **Section 2.0: Groundwater Hydraulics**, presents the Site 1 groundwater gradient, flow direction, and water level trends.
- **Section 3.0: Groundwater Sampling**, summarizes the Site 1 groundwater analytical data and presents the results of the evaluation of the groundwater data.
- **Section 4.0: Methane Monitoring**, summarizes the Site 1 methane monitoring data in the landfill gas monitoring wells, the landfill gas vents, and the perimeter gas monitoring points.
- **Section 5.0: Conclusions**, presents the conclusions and recommendations.
- **Section 6.0: References**, presents the references for this report.
- **Tables and figures** are incorporated into the text.
- **Appendix A** contains the field sampling data sheets.
- **Appendix B** contains a summary of the analytical tables and the CCL tables.
- **Appendix C** presents the Site 1 groundwater validated analytical results.
- **Appendix D** provides hydrographs of the Site 1 groundwater monitoring wells, piezometers, and collection trench wells.
- **Appendix E** provides time-series concentration graphs of monitoring points for each monitoring parameter that was detected in 2005.
- **Appendix F** provides time-series methane concentration graphs of the landfill gas monitoring wells and landfill gas vents.

- **Appendix G** provides the 2005 general site inspection reports and the 2005 Santa Clara County landfill inspection reports.
- **Appendix H** provides correspondence from 2005.

## 2.0 GROUNDWATER HYDRAULICS

This section describes the Site 1 hydrogeology, groundwater gradient and flow direction, and water level trends.

The stratigraphy of the Site 1 Landfill is a complex interfingering of fine-grained units representing the boundary between alluvial and estuarine environments and fluctuations of the boundary caused by changes in sea level. Lithologic logs from shallow well borings indicate that the uppermost materials (zero to 60 feet below ground surface) are comprised of silts to silty clays, which are brown to black and moderately plastic in nature. Intermittent throughout the upper 60 feet are interfingering silty sands and clayey gravels, which are medium gray to black or brown. These materials are present as lenses or stringers and are not laterally or vertically continuous throughout the site.

Most of the groundwater elevations in the Site 1 Landfill groundwater monitoring wells are below mean sea level. The vadose zone, between the saturated zone and the land surface, consists of either imported fill material or clayey soils.

Shallow subsurface soil samples within the Site 1 Landfill and surrounding the site, taken below the landfill but above the permeable lenses within the upper portion of the shallow aquifer, were tested for porosity and permeability. The results indicate that soils below the landfill and above the shallow aquifer are generally clays with hydraulic conductivity values in the  $10^{-8}$  centimeter-per-second range (appropriate for clayey material [Freeze and Cherry, 1979]).

Groundwater in the upper portion of the shallow aquifer beneath the landfill generally flows north to south (Tetra Tech FW, Inc. [TtFW], 2004). The regional groundwater flow direction is south to north toward San Francisco Bay. The southward gradient underlying the Site 1 Landfill is opposite from the regional gradient because of active pumping of the Moffett storm drainage system. Pumping occurs at Building 191, located south of the Site 1 Landfill (see Figure 1-2). Building 191 began operating in the early 1950s. It consists of a subsurface concrete-lined vault, equipped with a passive pump, and receives water from nearby ditches and a French drain system underneath the runways (Tetra Tech EM, Inc., 2000). The pump station influences local groundwater gradients and reverses the local natural groundwater flow direction because the drainage system that feeds the pump station is below the water table in some areas.

Three water bodies are proximal to the Site 1 Landfill: the man-made ephemeral Stormwater Retention Basin to the north, former Jagel Slough to the southeast, and United States Fish and Wildlife Service property to the east (Figure 2-1). It appears that low-permeability barriers exist between the water bodies and the Site 1 Landfill, limiting subsurface water movement (Navy, 1997). As a result, head differences are maintained between each water body (International



Technology Corporation, 1993). Potential for flow from the landfill to the other bodies exists, but these restrictive barriers limit actual flow. Low-hydraulic conductivity, high-organic contents associated with the clays, and low-contaminant source concentrations combine to restrict flow and limit potential contaminant migration (Navy, 1997).

## 2.1 GROUNDWATER GRADIENT AND FLOW DIRECTION

Field activities, conducted at the Site 1 Landfill in 2005, included four water level gauging events at monitoring wells, piezometers, and collection trench wells (Table 2-1). This section describes the collection of 2005 water level measurements and summarizes groundwater flow direction beneath the Site 1 Landfill. Figure 2-1 shows the locations for Site 1 water level measurements.

Measurements of depth to groundwater were made using an electronic measuring tape with markings every hundredth of a foot. All water levels were measured within a 24-hour period. Measurements were subtracted from surveyed measuring point elevations to calculate the groundwater level elevations.

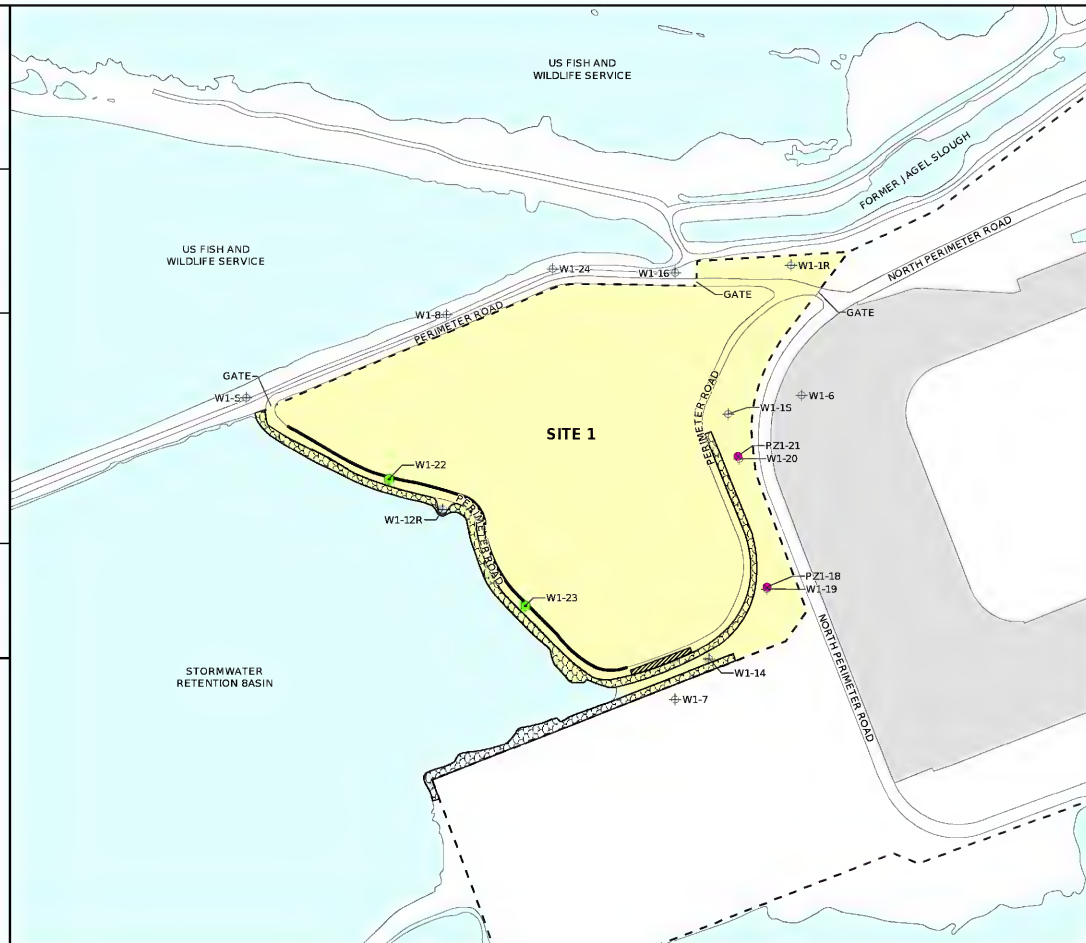
Depth-to-groundwater measurements were collected from 12 monitoring wells, 2 piezometers, and 2 collection trench wells at the Site 1 Landfill on:

- January 31, 2005
- March 7, 2005
- April 11, 2005
- October 3, 2005

Groundwater elevations for all Site 1 Landfill groundwater measurements were below sea level for 2005. The potentiometric surfaces of the upper portion of the shallow aquifer, shown on Figure 2-2 through Figure 2-5, were based on groundwater elevations in monitoring wells of similar construction and screened in the upper portion of the shallow aquifer. For example, piezometers PZ1-18 and PZ1-21 and wells W1-6 and W1-7 were not considered in the contouring because they are screened at greater depths than the other wells and are not considered representative of the groundwater elevations in the upper portion of the shallow aquifer. In addition, collection trench wells W1-22 and W1-23 were not included, as they are screened within the collection trench north of the landfill and are not considered representative of groundwater elevations.

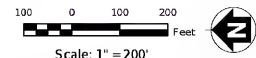
In general, the groundwater elevations were similar to previous years. Generally, the groundwater flows from north to south at the Site 1 Landfill. The gradient from north to south (W1-5 to W1-20) was approximately:

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# LEGEND

- W1-5 GROUNDWATER MONITORING WELL
- W1-22 COLLECTION TRENCH WELL
- PZ1-18 PIEZOMETER
- RIPRAP
- GAS VENTING TRENCH
- GROUNDWATER COLLECTION TRENCH
- ROAD
- SITE SECURITY FENCE
- RUNWAY
- WATER/WETLAND



BASE REALIGNMENT AND CLOSURE  
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SITE 1 LANDFILL 2005 ANNUAL REPORT  
FIGURE 2-1  
LOCATIONS FOR SITE 1 WATER LEVEL MEASUREMENTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA

TABLE 2-1

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
2005 GROUNDWATER ELEVATIONS  
FORMER NAS MOFFETT FIELD**

Location	ToC Elevation (ft.msl)	January 31, 2005 Depth to Water <sup>1</sup> (ft)	January 31, 2005 Water Elevation (ft.msl)	March 7, 2005 Depth to Water <sup>1</sup> (ft)	March 7, 2005 Water Elevation (ft.msl)	April 11, 2005 Depth to Water <sup>1</sup> (ft)	April 11, 2005 Water Elevation (ft.msl)	October 3, 2005 Depth to Water <sup>1</sup> (ft)	October 3, 2005 Water Elevation (ft.msl)
W1-1R	4.83	7.77	-2.94	7.21	-2.38	7.55	-2.72	8.29	-3.46
W1-5	3.02	5.32	-2.30	4.80	-1.78	5.05	-2.03	5.68	-2.66
W1-6	-0.56	2.11	-2.67	2.21	-2.77	1.98	-2.54	2.26	-2.82
W1-7	0.24	2.98	-2.74	2.53	-2.29	2.55	-2.31	3.33	-3.09
W1-8	2.95	5.35	-2.40	4.88	-1.93	5.08	-2.13	5.76	-2.81
W1-12R	0.17	2.58	-2.41	2.02	-1.85	2.29	-2.12	3.04	-2.87
W1-14	2.46	5.21	-2.75	4.60	-2.14	4.88	-2.42	5.77	-3.31
W1-15	2.60	5.43	-2.83	4.82	-2.22	5.10	-2.50	5.90	-3.30
W1-16	3.82	7.50	-3.68	7.10	-3.28	6.69	-2.87	7.01	-3.19
W1-19	1.98	4.76	-2.78	4.18	-2.20	4.52	-2.54	5.37	-3.39
W1-20	2.72	5.57	-2.85	5.02	-2.30	5.28	-2.56	6.06	-3.34
W1-22 <sup>2</sup>	1.12	3.45	-2.33	2.95	-1.83	2.40	-1.28	3.69	-2.57
W1-23 <sup>3</sup>	0.83	5.61	-4.78	5.60	-4.77	5.48	-4.65	5.64	-4.81
W1-24	4.27	6.98	-2.71	6.38	-2.11	6.68	-2.41	7.34	-3.07
PZ1-18 <sup>3</sup>	2.25	5.10	-2.85	5.04	-2.79	4.62	-2.37	4.74	-2.49
PZ1-21 <sup>3</sup>	2.28	5.21	-2.93	4.56	-2.28	4.81	-2.53	5.60	-3.32

**Note:**

<sup>1</sup> - Depth to water may vary from field sampling data forms (Appendix A). Data were collected on separate dates.

<sup>2</sup> - W1-22 and W1-23 are collection trench wells, not groundwater monitoring wells.

<sup>3</sup> - PZ1-18 and PZ1-21 are piezometers, not groundwater monitoring wells.

**Abbreviations and Acronyms**

ft - feet

msl - mean sea level

NAS - Naval Air Station

ToC - top of casing

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CHECKED BY: EB	
AUTHOR: CFG	DATE: 4/20/06



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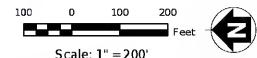
- W1-5 -2.66  
GROUNDWATER MONITORING WELL
- W1-22 -2.57  
COLLECTION TRENCH WELL
- PZ1-18 -2.49  
PIEZOMETER
- GENERAL GROUNDWATER FLOW DIRECTION
- 3.0  
INTERPRETED GROUNDWATER ELEVATION  
CONTOURED IN FEET (MSL), DASHED WHERE  
INFERRED. NEGATIVE VALUES ARE BELOW MSL
- GROUNDWATER COLLECTION TRENCH
- ROAD
- SITE SECURITY FENCE
- RIPRAP
- GAS VENTING TRENCH
- RUNWAY
- WATER/WETLAND

## NOTES:

GROUNDWATER DEPRESSION AT MONITORING WELL W1-16  
MAY BE DUE TO GAUGING WATER LEVEL PRIOR TO  
STABILIZATION

MSL - MEAN SEA LEVEL

(a) - WATER LEVEL IN MONITORING WELLS, PIEZOMETERS  
AND COLLECTION TRENCH WELLS NOT USED TO  
CREATE POTENTIOMETRIC SURFACE ARE NOT  
COMPLETED IN THE UPPER MOST PORTION OF THE  
SHALLOW AQUIFER



Scale: 1" = 200'

BASE REALIGNMENT AND CLOSURE  
PROGRAM MANAGEMENT OFFICE WEST  
SAN DIEGO, CA

SITE 1 LANDFILL 2005 ANNUAL REPORT  
FIGURE 2-2

POTENTIOMETRIC SURFACE, JANUARY 2005

FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA



TETRATECH, INC.

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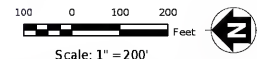
- W1-5  
-2.66  
GROUNDWATER MONITORING WELL  
GROUNDWATER ELEVATION IN FEET (MSL)
- W1-22  
-2.57  
COLLECTION TRENCH WELL  
WATER LEVEL NOT USED TO CREATE  
POTENTIOMETRIC SURFACE (a)
- PZ1-18  
-2.49  
PIEZOMETER  
WATER LEVEL NOT USED TO CREATE  
POTENTIOMETRIC SURFACE (a)
- GENERAL GROUNDWATER FLOW DIRECTION
- 3.0- INTERPRETED GROUNDWATER ELEVATION  
CONTOURED IN FEET (MSL), DASHED WHERE  
INFERRED. NEGATIVE VALUES ARE BELOW MSL
- GROUNDWATER COLLECTION TRENCH
- ROAD
- SITE SECURITY FENCE
- RIPRAP
- GAS VENTING TRENCH
- RUNWAY
- WATER/WETLAND

## NOTES:

GROUNDWATER DEPRESSION AT MONITORING WELL W1-16  
MAY BE DUE TO GAUGING WATER LEVEL PRIOR TO  
STABILIZATION

MSL - MEAN SEA LEVEL

(a) - WATER LEVEL IN MONITORING WELLS, PIEZOMETERS  
AND COLLECTION TRENCH WELLS NOT USED TO  
CREATE POTENTIOMETRIC SURFACE ARE NOT  
COMPLETED IN THE UPPER MOST PORTION OF THE  
SHALLOW AQUIFER



Scale: 1" = 200'

BASE REALIGNMENT AND CLOSURE  
PROGRAM MANAGEMENT OFFICE WEST  
SAN DIEGO, CA

SITE 1 LANDFILL 2005 ANNUAL REPORT  
FIGURE 2-3

POTENTIOMETRIC SURFACE, MARCH 2005

FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA



TETRATECH, INC.



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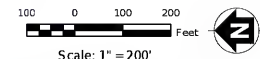
## LEGEND

- W1-5 -2.66 GROUNDWATER MONITORING WELL
- W1-22 -2.57 COLLECTION TRENCH WELL
- PZ1-18 -2.49 PIEZOMETER
- GENERAL GROUNDWATER FLOW DIRECTION
- INTERPRETED GROUNDWATER ELEVATION CONTOURED IN FEET (MSL), DASHED WHERE INFERRED. NEGATIVE VALUES ARE BELOW MSL
- GROUNDWATER COLLECTION TRENCH
- ROAD
- SITE SECURITY FENCE
- RIPRAP
- GAS VENTING TRENCH
- RUNWAY
- WATER/WETLAND

## NOTES:

MSL - MEAN SEA LEVEL

(a) - WATER LEVEL IN MONITORING WELLS, PIEZOMETERS AND COLLECTION TRENCH WELLS NOT USED TO CREATE POTENTIOMETRIC SURFACE ARE NOT COMPLETED IN THE UPPER MOST PORTION OF THE SHALLOW AQUIFER



BASE REALIGNMENT AND CLOSURE  
PROGRAM MANAGEMENT OFFICE WEST  
SAN DIEGO, CA

SITE 1 LANDFILL 2005 ANNUAL REPORT  
FIGURE 2-5

POTENTIOMETRIC SURFACE, OCTOBER 2005

FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA



TETRA TECH, INC.

- 0.0005 foot per foot (ft/ft) in January 2005
- 0.0005 ft/ft in March 2005
- 0.0005 ft/ft in April 2005
- 0.0007 ft/ft in October 2005

The water levels in monitoring well pair W1-19/PZ1-18 (see Figure D-17 in Appendix D) show upward potential since 1999 (the water levels in PZ1-18 are higher than in W1-19, and PZ1-18 is completed 11 feet deeper in the A aquifer than W1-19), with the exception of measurements collected on August 18, 2004, and January 31 and March 7, 2005. The water levels in monitoring well pair W1-20/PZ1-21 (see Figure D-18 in Appendix D) show upward potential since 1999 (the water levels in PZ1-21 are higher than in W1-20, and PZ1-21 is completed 11 feet deeper in the A aquifer than W1-20), with the exception of measurements collected on July 12, 1999, January 24, 2000, January 16, 2001, and January 31, 2005. Water levels in the W1-20/PZ1-21 pair have been generally within a couple hundredths of a foot of each other since 1999.

## 2.2 WATER LEVEL TRENDS

Appendix D contains groundwater hydrographs for the 12 monitoring wells and 2 piezometers at the Site 1 Landfill. Some monitoring wells and piezometers show a slight upward (W1-1/1R, W1-12/12R, W1-19, W1-20, PZ1-18, and PZ1-21) or slight downward (W1-16) long-term water level trend, while the remainder of the monitoring wells showed a flat long-term trend. All monitoring wells and piezometers show a seasonal water level variation, with a high-water level elevation near the end of the rainy season (March) and a low-water level elevation near the end of the dry season (October).

The following water level trends were observed in 2005:

- Monitoring wells had seasonal high water levels in March.
- Monitoring wells had seasonal low water levels in October.

The seasonal water level fluctuation was on the order of 1 foot.



## 3.0 GROUNDWATER SAMPLING

Groundwater monitoring at Site 1 was conducted during 2005 in accordance with the *Final Site 1 Landfill Post-Closure Long-Term Monitoring Plan* (Tetra Tech FW, Inc. [TtFW], 2005a) and the *Final Technical Memorandum, Site 1 Groundwater Evaluation Process* (Tech Memo) (TtFW, 2004).

Groundwater samples were collected from nine monitoring wells, as well as from collection trench well W1-22. Collection trench well W1-23 could not be sampled because of insufficient water. Samples were analyzed for the monitoring parameters (MPs). MPs include physical and analytical parameters. The physical MPs are temperature, conductivity, dissolved oxygen, oxidation/reduction potential, pH, and turbidity. The analytical MPs were selected based on Title 27 California Code of Regulations criteria and are described below (TtFW, 2004). Locations for Site 1 groundwater and collection trench sampling are shown in Figure 3-1. Field sampling data sheets for the April and October 2005 groundwater sampling events are included in Appendix A.

Six supplemental groundwater sampling events were conducted in 2004 and two additional supplemental groundwater sampling events were conducted in January and March 2005 to develop the database required for the Tech Memo evaluation of dissolved mercury and the semivolatile organic compounds (SVOCs). Field sampling data sheets for the supplemental groundwater sampling events are included in Appendix A.

### 3.1 ANALYTICAL RESULTS

Tables B-1 through B-4 in Appendix B of this document present the analytical summary tables for semiannual and supplemental samples collected in 2005. Appendix C of this document presents the validated analytical data (provide on compact disk [CD] only). Analytical testing for 2005 was conducted in accordance with the Tech Memo (TtFW, 2004), as described in the following section.

#### 3.1.1 Analytical Testing

Groundwater samples collected in April and October 2005 at the Site 1 Landfill were analyzed for the following analytical MPs:

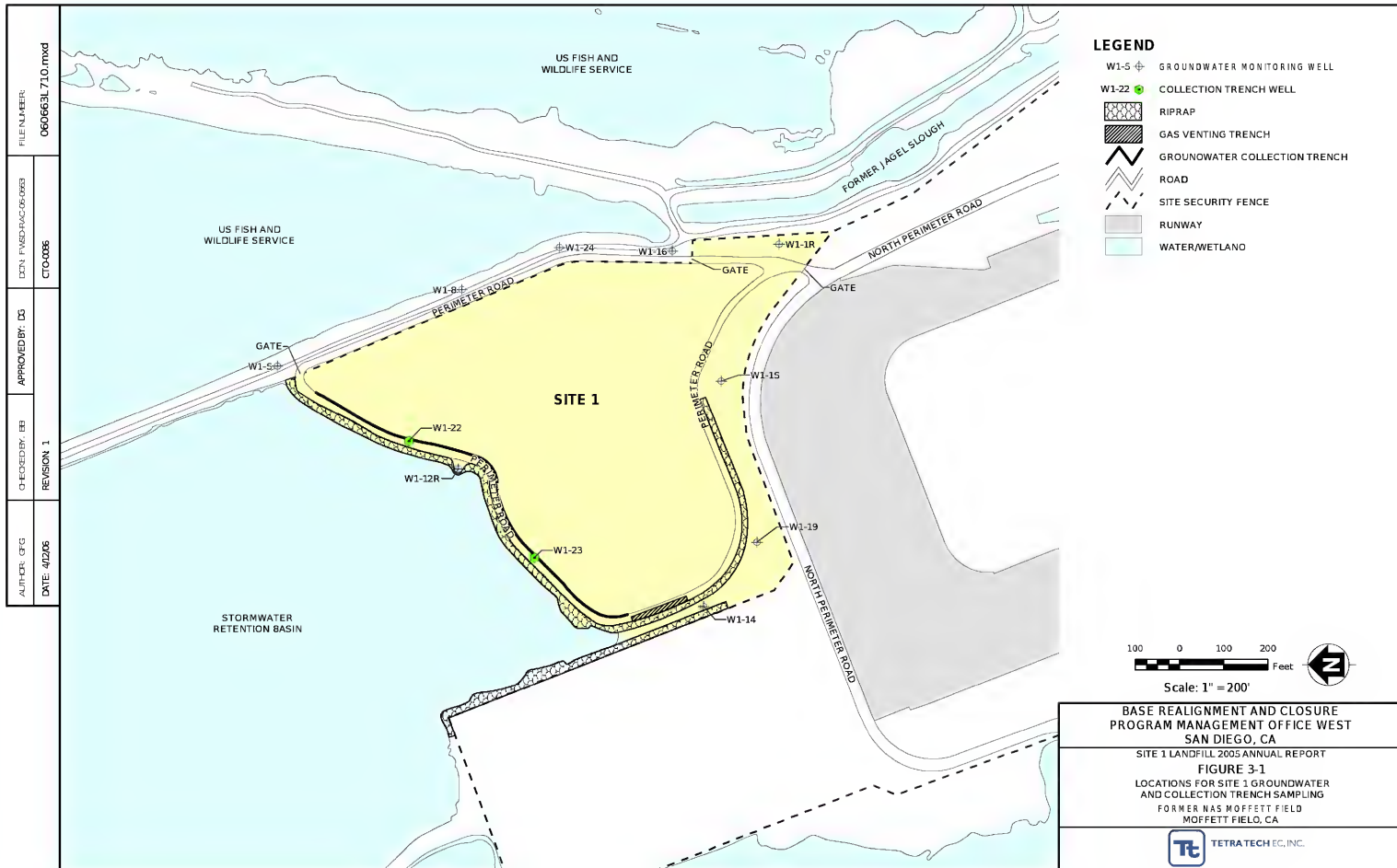
- Volatile organic compounds (VOCs) using United States Environmental Protection Agency (EPA) Method 8260B:
  - M,p-xylene
  - Trichloroethene

- Vinyl chloride
- Pesticides using EPA Method 8081A:
  - Beta-benzene hexachloride
  - Heptachlor
- Dissolved metals using EPA Method 200.8:
  - Arsenic
  - Barium
  - Cobalt
  - Copper
- SVOCs using EPA Method 8270C:
  - 2,4,6-trichlorophenol
  - 2-methylphenol

Supplemental groundwater samples collected in January and March 2005 at the Site 1 Landfill were analyzed for the following:

- Dissolved mercury using EPA Method 7470A
- SVOCs using EPA Method 8270C

Twelve samples, including two duplicate samples, were collected from nine groundwater monitoring wells and one collection trench well at the Site 1 Landfill for each of the semiannual sampling events. Eleven samples, including one duplicate sample, were collected from nine groundwater monitoring wells and one collection trench well at the Site 1 Landfill for each of the supplemental sampling events. The analytical results from the collection trench well W1-22 are not considered representative of chemical concentrations of the shallow aquifer. The collection trench wells were not designed to monitor groundwater at the site. The collection trench wells are screened in a collection trench, located on the north side of the landfill, which was installed to protect the adjacent Stormwater Retention Basin. The collection trench wells are shallow and screened in permeable fill material placed in the collection trench. An impermeable barrier was installed on the north side of the collection trench to inhibit groundwater influence. Because of well construction relative to the collection trench and the shallow aquifer, the collection trench wells are not considered to be useful monitoring points for collecting representative samples of groundwater conditions. However, the collection trench wells are sampled at the same frequency as the monitoring wells in accordance with the *Moffett Federal Airfield Final Operable Unit 1 Record of Decision* (Navy, 1997) requirements.



### 3.1.2 Statistical Evaluation

Table 3-1 presents the MPs and the calculated concentration limits (CCLs), as detailed in the Tech Memo (TtFW, 2004). CCLs were developed based on ecological screening criteria and site-specific attenuation factors for the groundwater. These CCLs are used as initial screening criteria in the groundwater data evaluation. If analytical results are less than the CCLs, then no additional evaluation is required, and there is no release from the landfill. If CCLs are exceeded, then additional evaluation of the upgradient (background) and downgradient data is conducted to determine whether there has been a release from the landfill. If upgradient concentrations are higher than downgradient concentrations, there is no release from the landfill. Conversely, if downgradient concentrations are higher than upgradient concentrations, additional sampling events are conducted and evaluated to determine whether there has been a release from the landfill. Tables 3-2 and 3-3 present the physical MPs and MP analytes detected in groundwater samples from monitoring wells and the collection trench at Site 1 during April and October 2005 sampling events. Tables B-5 and B-6 provide the statistical evaluation summary.

### 3.1.3 Visual Trends

Appendix E contains groundwater monitoring point data graphs for monitoring wells with at least one detection in 2005, and a total of at least three historical detected concentrations (1999 through 2005). Groundwater monitoring point data graphs are specified in Title 27 California Code of Regulations, Section 20415(e)(14). Trends were determined by visually evaluating the graphs for increasing concentration trends, decreasing concentration trends, or relatively consistent (flat) concentration trends.

Arsenic, barium, cobalt, and copper were all detected at least once in 2005, and each dissolved metal had at least three historical detected concentrations (1999 through 2005) in samples from every Site 1 groundwater monitoring well. In general, arsenic concentrations show a decreasing trend, barium concentrations show a flat trend, cobalt concentrations show a flat to decreasing trend, and copper concentrations show a decreasing trend. All of these metals are found in seawater (Hem, 1971) and are considered part of the composition of natural groundwater at the Site 1 Landfill.

No VOCs, SVOCs, or pesticides were detected in 2005 with a total of at least three historically detected concentrations (1999 through 2005) in samples from a Site 1 groundwater monitoring well. Therefore, no other trends exist.

## 3.2 GROUNDWATER QUALITY EVALUATION

Results from the 2005 groundwater sampling events are tabulated in Appendix B of this document and summarized below.

### 3.2.1 April 2005 Sampling Event

During the April 2005 sampling event, the dissolved metal MPs (arsenic, barium, cobalt, and copper) and one pesticide MP (heptachlor) were detected in samples from monitoring wells at concentrations greater than their respective project reporting limits (see Table 3-2). Neither VOC nor SVOC MPs were detected in the April 2005 sampling event. The following details how barium and heptachlor exceeded their respective CCLs:

- The barium CCL was exceeded in samples from every monitoring well. However, all CCL exceedances either occurred in samples from a background well or were less than historical background values, and thus were removed from further consideration.
- Heptachlor was detected in a sample from background monitoring well W1-5. Since the heptachlor CCL was exceeded in a sample from a background well, it was removed from further consideration.

Also during the April 2005 sampling event, the dissolved metal MPs were detected in a sample from trench well W1-22 at concentrations greater than their respective project reporting limits (see Table 3-2). However, the analytical results from the collection trench well are not considered representative of chemical concentrations of the shallow aquifer (see Section 3.1.1).

### 3.2.2 October 2005 Sampling Event

During the October 2005 sampling event, the dissolved metal MPs (arsenic, barium, cobalt, and copper) and one pesticide MP (heptachlor) were detected in samples from monitoring wells at concentrations greater than their respective project reporting limits (see Table 3-3). No VOC or SVOC MP was detected in the October 2005 sampling event. The following details how barium exceeded its CCL:

- The barium CCL was exceeded in samples from every monitoring well. Barium occurred in samples from a background well or was below historical background values. Thus, it was removed from further consideration.

Also during the October 2005 sampling event, the dissolved metal MPs and one pesticide MP (beta-benzene hexachloride) were detected in samples from trench well W1-22 at concentrations greater than their respective project reporting limits (see Table 3-3). However, the analytical results from the collection trench well are not considered representative of chemical concentrations of the shallow aquifer (see Section 3.1.1).

### 3.2.3 Supplemental Sampling Events

There were no detections of dissolved mercury or of any SVOC greater than the project reporting limit for the supplemental groundwater samples collected in January and March 2005 (see Tables B-3 and B-4 of Appendix B).

TABLE 3-1

**DRAET SITE 1 LANDEILT 2005 ANNUAL REPORT  
MONITORING PARAMETERS AND CALCULATED CONCENTRATION LIMITS  
FORMER NAS MOFFETT FIELD**

MP	MDL <sup>a</sup> (µg/L)	SQL <sup>a</sup> (µg/L)	Calculated Concentration Limit (µg/L)
<b>Metals</b>			
Arsenic	0.22	1	89.64
Barium	0.18	10	40.00
Cobalt	0.2	1	230.00
Copper	0.19	1	5.15
<b>VOCs</b>			
m,p-Xylene	0.3	1	4.11
Trichloroethene	0.2	0.5	9.49
Vinyl chloride	0.2	1	61.95
<b>Pesticides</b>			
beta-BHC	0.01	0.05	340.00
Heptachlor	0.01	0.05	0.36
<b>SVOCs</b>			
2,4,6-Trichlorophenol	5	10	411.28
2-Methylphenol	5	10	11.31

**Note:**

<sup>a</sup> The MDL and SQL are based on the specific analytical methods listed in Section 4.1 of the *Technical Memorandum, Site 1 Groundwater Evaluation Process* (TtFW, 2004). MDLs are likely to change slightly for each analysis, as the MDL depends on both sample and instrument conditions at the time of analysis. For those cases where the CCLs have been made equal to the MDL, the CCL may change slightly for each analysis event.

**Abbreviations and Acronyms:**

µg/L - micrograms per liter  
 BHC - benzene hexachloride  
 CCL - calculated concentration limit  
 MP - monitoring parameter  
 MDL - method detection limit  
 NAS - Naval Air Station  
 SQL - sample quantitation limit  
 SVOC - semivolatile organic compound  
 TtFW - Tetra Tech FW, Inc.  
 VOC - volatile organic compound

TABLE 3-2

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
APRIL 2005 DETECTED ANALYTES IN GROUNDWATER  
FORMER NAS MOFFETT FIELD

MP	86-S1-106 W1-1R 4/11/05	86-S1-109 W1-15 4/11/05	86-S1-110 W1-19 4/11/05	86-S1-112 W1-14 4/11/05	86-S1-113 W1-12R 4/12/05	86-S1-114 W1-12R (DUP) 4/12/05	86-S1-115 W1-22* 4/12/05	86-S1-116 W1-5 4/12/05	86-S1-117 W1-8 4/12/05	86-S1-118 W1-8 (DUP) 4/12/05	86-S1-119 W1-21 4/13/05	86-S1-120 W1-16 4/13/05
<b><i>dissolved Metals (<math>\mu</math> g/L)</i></b>	<b><i>EPA Method 200.8</i></b>											
Arsenic	0.834 J	4.61 J	2.2 J	4.54 J	1.55 J	1.63 J	2.76 J	1.05 J	2.09 J	1.77 J	6.35 J	5.43 J
Barium	73.3	115 J	83.8	181	74.3	73.4 J	208	507	130	130 J	218	244
Cobalt	13.5	1.91 J	9.93	6.01	4.67	6.37	4.33	1.28	2.74	2.4 J	6.29	4.99
Copper	0.602 J	0.205 J	0.814 J	0.225 J	0.528 J	0.573 J	0.831 J	0.142 J	0.329 J	0.434 J	0.243 J	0.214 J
<b><i>pesticides (<math>\mu</math> g/L)</i></b>	<b><i>EPA Method 8081A</i></b>											
Heptachlor	0.047 U	0.048 U	0.047 U	0.047 U	0.053 U	0.047 U	0.047 U	1.2	0.048 U	0.047 U	0.048 U	0.048 U
<b><i>Field Measurements</i></b>												
DO (mg/L)	0.09	0.04	0.05	0.1	0.14	-	0.09	0.1	0.09	-	0.15	0.11
pH	6.8	6.9	6.9	7	7.1	-	7	7.1	7.3	-	7.1	6.9
ORP (mV)	316	37	186	104	242	-	100	96	256	-	-97	-123
Temperature (°C)	22.8	24.5	22.8	21.2	13.9	-	22.6	24.1	21.8	-	16.4	18.6
Conductivity ( $\mu$ mhos/cm)	86170	60919	85611	80166	49547	-	27540	72228	76714	-	54692	60787
Turbidity (NTU)	0.75	6.4	1.3	2.9	12	-	2.2	5.9	1.9	-	5.8	3.2

**Notes:**

\* - Well W1-22 is a collection trench well not representative of groundwater at Site 1.

Shading indicates concentration above the calculated concentration limit.

**Abbreviations and Acronyms:** $\mu$ g/L - micrograms per liter $\mu$ mhos/cm - micromhos per centimeter

°C - degrees Celsius

DO - dissolved oxygen

DUP - duplicate sample

EPA - United States Environmental Protection Agency

J - estimated value

mg/L - milligrams per liter

MP - monitoring parameter

mV - millivolts

NAS - Naval Air Station

NTU - nephelometric turbidity unit

ORP - oxidation/reduction potential

pH - hydrogen (ion) concentration

U - analyte not detected above project reporting limit

MP	06-S1-124	06-S1-125	06-S1-126	06-S1-128	06-S1-129	06-S1-130	06-S1-131	06-S1-132	06-S1-133	06-S1-134	06-S1-135	06-S1-136
	W1-1R 10/4/05	W1-15 10/4/05	W1-19 10/6/05	W1-14 10/6/05	W1-12R 10/6/05	W1-22* 10/6/05	W1-5 10/6/05	W1-5 (DUP) 10/6/05	W1-8 10/6/05	W1-8 (DUP) 10/6/05	W1-21 10/6/05	W1-16 10/6/05
Dissolved Metals (µg/L) EPA Method 200.8												
Arsenic	1.61	4.47	2.97	5.28	2.53	1.93	0.95	1.95 J	3.86	4.33 J	7.25	7.72
Barium	107	176	90.9	159	72	1260	576	556 J	150	170 J	306	438
Cobalt	7.69 J	3.32 J	9.69 J	8.34 J	5.25 J	0.36 J	1.73 J	2.99 J	2.72 J	2.28 J	2.87 J	7.28 J
Copper	2.64 J	0.1 J	0.494 J	0.075 J	0.206 J	0.135 J	0.031 J	0.06 J	0.069 J	0.063 J	0.14 J	0.125 J
Pesticides (µg/L) EPA Method 8081A												
beta-BHC	0.048 U	0.048 U	0.047 U	0.047 U	0.049 U	0.25	0.05 U	0.048 U	0.048 U	0.047 U	0.05 U	0.049 U
Heptachlor	0.048 U	0.048 U	0.047 U	0.047 U	0.02 J	0.049 U	0.05 U	0.048 U	0.048 U	0.047 U	0.05 U	0.049 U
Field Measurements												
DO (mg/L)	0.2	0.26	0.26	0.23	0.13	0.1	0.11	-	0.11	-	0.2	0.11
pH	6.5	6.7	6.6	6.7	6.5	6.3	6.5	-	6.7	-	6.5	6.5
ORP (mV)	316	-32	185	74	164	37	63	-	59	-	8	17
Temperature (°C)	20.6	21.2	15.6	18.3	19.9	23.4	23.2	-	22.8	-	20.5	21
Conductivity (µmhos/cm)	68602	64824	68499	67110	68860	43570	57874	-	60648	-	60221	64722
Turbidity (NTU)	0	6.4	1.8	2.6	21.2	15	2.6	-	8.9	-	6.3	14.1

<sup>a</sup> - Well W1-22 is a collection trench well not representative of groundwater at Site 1.

Shading indicates concentration above the calculated concentration limit.

### Abbreviations and Acronyms

μg/L - micrograms per liter  
μmhos/cm - micromhos per centimeter

<sup>o</sup>C – degrees Celsius

BHC = benzene hexachloride

DO – dissolved oxygen

DUP – duplicate sample

EPA - United States Environmental Protection Agency

J – estimated value

mg/L - milligrams per liter

MP – monitoring parameters

mV - millivolts

NAS – Naval Air Station

NTU – nephelometric turbidity unit

ORP – oxidation/reduction potential

pH - hydrogen (ion) concentration

U - analyte not detected above project reporting limit



## 4.0 METHANE MONITORING

As part of landfill monitoring activities, methane monitoring was conducted for 19 passive gas vent (GV) wells within the Site 1 Landfill and 4 landfill gas monitoring wells (LGMW) on the perimeter of the landfill. Methane monitoring was also performed at the perimeter of the site at 150-foot intervals at 21 locations. The monitoring program was conducted in accordance with Section 4 of the *Final Site 1 Landfill Post-Closure Long-Term Monitoring Plan* (Tetra Tech FW, Inc., 2005a). The monitoring program was conducted in April and October 2005, using a Landtec GA 90 portable methane monitor. Methane monitoring locations are shown in Figure 4-1.

### 4.1 LANDFILL GAS MONITORING WELL AND GAS VENT RESULTS

The results of LGMW and GV monitoring are shown in Table 4-1. In general, the percentages of methane gas concentrations within the landfill were slightly lower in October 2005 than in April 2005, and are similar to historical concentrations. Methane concentrations were highest in April 2005, near the northern portion of the landfill (GV-7 at 42.3 percent), followed by a detected concentration of 36.0 percent in GV-11, which is near the center of the landfill. None of the perimeter wells (LGMW1-1 through LGMW1-4) showed concentrations of methane above the concentration limit of 5 percent (all readings were zero percent), as specified in Title 27 California Code of Regulations, Section 20921(a)(2) and as identified in the *Moffett Federal Airfield Final Operable Unit 1 Record of Decision* (Department of the Navy, 1997). Appendix F contains methane monitoring data graphs for the 19 GV wells and the 4 LGMWs.

### 4.2 PERIMETER GAS MONITORING RESULTS

Perimeter monitoring points (P-1 through P-21) are located along the perimeter fence line at approximate 150-foot intervals. Methane was not detected at any of the perimeter monitoring locations in April or October 2005.

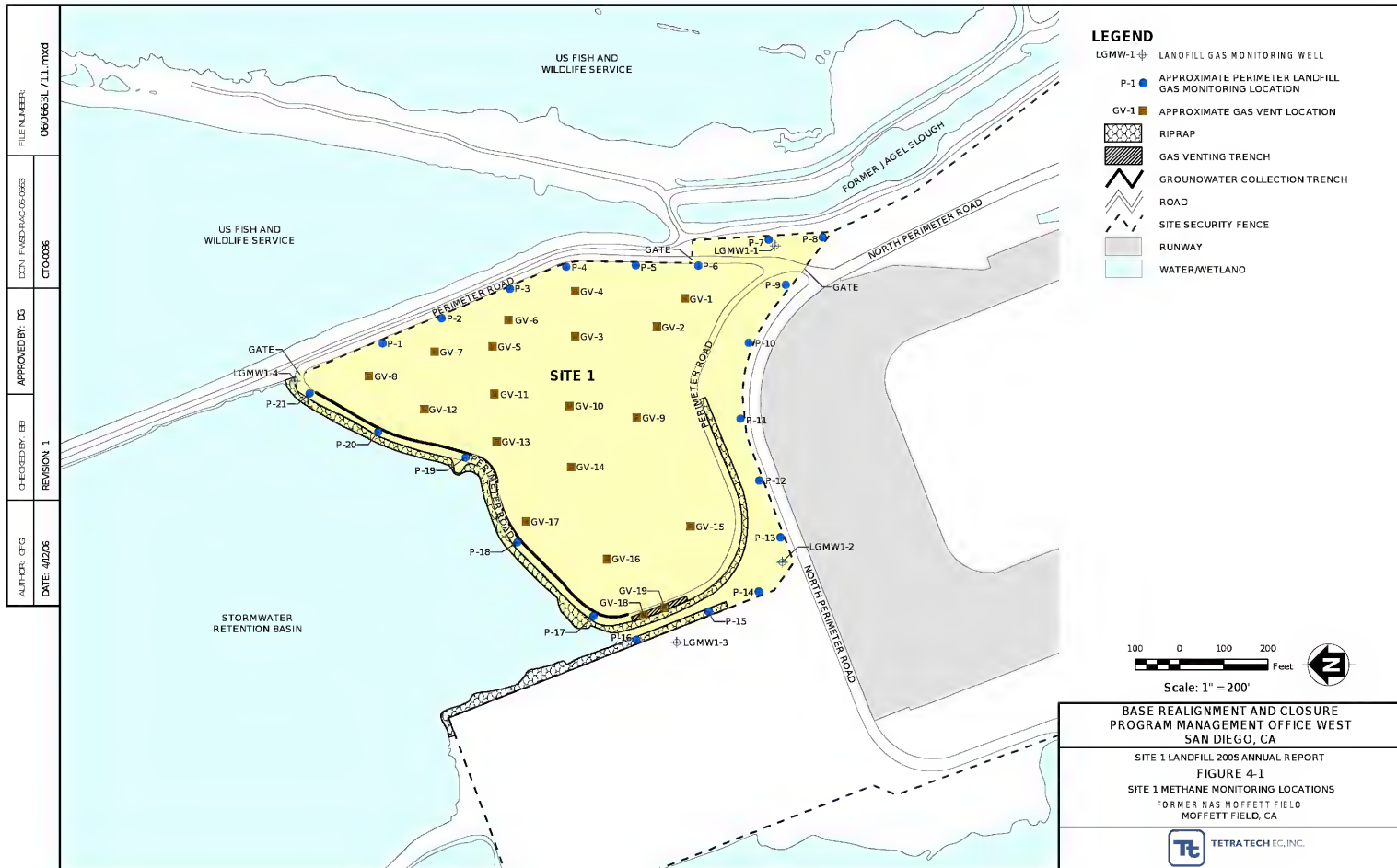


TABLE 4-1

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
2005 LANDFILL GAS MONITORING WELL AND  
GAS VENT METHANE MONITORING RESULTS  
FORMER NAS MOFFETT FIELD**

Monitoring Location	Percent Methane <sup>1</sup>	
	April 18, 2005	October 7, 2005
GV-1	0.5	0.1
GV-2	0.0	0.0
GV-3	0.0	0.0
GV-4	0.0	0.0
GV-5	0.0	4.8
GV-6	23.0	2.6
GV-7	42.3	38.6
GV-8	32.1	24.8
GV-9	0.0	0.0
GV-10	1.4	1.0
GV-11	36.0	3.5
GV-12	12.9	0.0
GV-13	0.0	0.0
GV-14	0.0	0.0
GV-15	0.0	0.0
GV-16	0.0	0.0
GV-17	0.0	0.0
GV-18	0.0	0.0
GV-19	0.0	0.0
LGMW1-1	0.0	0.0
LGMW1-2	0.0	0.0
LGMW1-3	0.0	0.0
LGMW1-4	0.0	0.0

**Notes:**

<sup>1</sup> - Methane concentrations were measured using a Landtec GA 90 portable methane meter. Accuracy is  $\pm 0.3\%$  by volume at 5% concentration, and  $\pm 1.9\%$  by volume at 60% concentration.

**Abbreviations and Acronyms:**

GV – gas vent

LGMW – landfill gas monitoring well

NAS - Naval Air Station

## 5.0 CONCLUSIONS

Depth-to-groundwater measurements were collected from Site 1 Landfill monitoring wells, piezometers, and collection trench wells on:

- January 31, 2005
- March 7, 2005
- April 11, 2005
- October 3, 2005

Groundwater elevations for all Site 1 Landfill measurements were below sea level for 2005. In general, the groundwater elevations were similar to previous years. The groundwater flows from north to south at the Site 1 Landfill. The gradient from north to south was approximately:

- 0.0005 foot per foot (ft/ft) in January 2005
- 0.0005 ft/ft in March 2005
- 0.0005 ft/ft in April 2005
- 0.0007 ft/ft in October 2005

The following water level trends were observed in 2005:

- Monitoring wells had seasonal high water levels in March.
- Monitoring wells had seasonal low water levels in October.

The seasonal water level fluctuation was on the order of approximately 1 foot.

The water levels in monitoring well pairs W1-19/PZ1-18 and W1-20/PZ1-21 generally show upward potential since 1999.

Dissolved metal monitoring parameters (MPs) were detected at least once in 2005. Historically detected concentrations since 1999 generally show a decreasing trend for arsenic, a flat trend for barium, a flat to decreasing trend for cobalt, and a decreasing for copper. All of these metals are found in seawater (Hem, 1971) and are considered part of the composition of natural groundwater at the Site 1 Landfill.

No volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), or pesticides were detected in 2005 with a total of at least three historically detected concentrations (1999 through 2005) in samples from a Site 1 groundwater monitoring well. Therefore, no other trends exist.

During the April 2005 sampling event, the dissolved metal MPs and one pesticide MP (heptachlor) were detected in samples from monitoring wells at concentrations greater than their respective project reporting limits. Only concentrations of barium and heptachlor exceeded their respective calculated concentrations limits (CCLs). Barium was removed from further consideration due to the CCL exceedances occurring in samples from a background well or exceedances were less than historical background values. Heptachlor was also removed from further consideration due the CCL exceedance occurring in a sample from a background well. Neither VOC nor SVOC MPs were detected in the April 2005 sampling event.

During the October 2005 sampling event, the dissolved metal MPs and one pesticide MP (heptachlor) were detected at concentrations greater than their respective project reporting limits. Only concentrations of barium exceeded its CCL. Barium was removed from further consideration due to the CCL exceedances occurring in samples from a background well or exceedances were less than historical background values. Neither VOC nor SVOC MPs were detected in the October 2005 sampling event.

There were no detections of dissolved mercury or of any SVOC at concentrations greater than the project reporting limit for the supplemental groundwater samples collected in January and March 2005.

Analytical results obtained throughout 2005 indicate that there has not been a release from the landfill to groundwater.

As part of landfill monitoring activities, methane monitoring was conducted at the Site 1 Landfill. In general, the percentages of methane gas concentrations within the landfill were slightly lower in October 2005 than in April 2005 and were similar to historical concentrations. Methane was not detected at any of the perimeter monitoring locations in April or October 2005. No landfill gas is migrating off site.

As part of landfill maintenance activities, the landfill is routinely inspected and repaired, as necessary. The landfill cover is intact and functional.

## 6.0 REFERENCES

- Department of the Navy. 1997. *Moffett Federal Airfield Final Operable Unit 1 Record of Decision*. Moffett Federal Airfield, Moffett Field, California. August 1.
- Freeze, R.A., and J.A. Cherry. 1979. *Groundwater*. Prentice-Hall, Inc.: Englewood Cliffs, New Jersey.
- Hem, John D. 1971. *Study and Interpretation of the Chemical Characteristics of Natural Water*. Geological Survey Water-Supply Paper 1473. Second Edition.
- International Technology Corporation. 1993. *Remedial Investigation Report, Operable Unit 1, Landfill Sites 1 and 2*. NAS Moffett Field. March.
- Tetra Tech EM, Inc. 2000. *Draft Northern Channel Physical Characterization Report*. February.
- Tetra Tech FW, Inc. (TtFW). 2004. *Final Technical Memorandum, Site 1 Groundwater Evaluation Process*. April 8.
- \_\_\_\_\_. 2005a. *Final Site 1 Landfill Post-Closure Long-Term Monitoring Plan*. March 18.
- \_\_\_\_\_. 2005b. *Final Site 1 Landfill Post-Closure Long-Term Maintenance Plan*. March 18.

## **APPENDIX A**

### **FIELD SAMPLING DATA**

## **SEMIANNUAL SAMPLING**



**APRIL 2005**



# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 04-11-05

Well Name <u>WI-1R</u>	Screen Interval <u>14.3 - 21.3</u>	Station Elevation <u>        </u> GND <u>        </u> TOC <u>        </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>Site 1 gw (semi-annual)</u>	Static Water Level (from TOC) / Time <u>7.50/0623</u> <u>7.50/0624</u> <u>7.51/0625</u>	Average Water Level (from TOC) <u>7.50</u>	
Project No. <u>1990.089E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>	
Well Location <u>Site 1</u>	Reference Elevation <u>        </u>	PID Reading (TOC) <u>0</u>	
Sample Date <u>04-11-05</u>	Static Elevation <u>        </u>	Notes <u>        </u>	
Sampling Personnel <u>Ogle</u>	Well Depth MEAS <u>27.48</u> RPTD <u>        </u>	Feet of Water <u>        </u>	
<u>Ramos</u>	Depth of Bottom of Tubing <u>19.3</u>		
Sample ID <u>86-S1-106</u>	Depth to Water (w/ Tubing in Well) <u>7.48</u>		
Duplicate ID <u>        </u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0834	.24	.13	6.9	32.1	21.9	87461	2.5	.2			7.51	
0837	.24	.11	6.8	32.1	22.1	87428	2.4	.5			7.51	
0840	.24	.11	6.8	32.0	22.4	86980	2.2	.7			7.52	
0843	.24	.11	6.8	31.8	22.6	86891	1.6	.9			7.52	
0846	.24	.10	6.8	31.7	22.5	86570	.9	1.0			7.53	
0849	.24	.10	6.8	31.7	22.7	86421	.8	1.2			7.53	
0852	.24	.09	6.8	31.5	22.8	86180	.75	1.4			7.51	
0855	.24	.09	6.8	31.6	22.8	86170	.75	1.5			7.51	
0858	Well Stabilized - Sampling Secured											

Notes:

1. Purge rate = 0.2 - 0.8 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

VOCs	SVOCs	PCBs	Pesticides	Dis. Metals	Dis. Mercury		
SAMPLE RATE							
.1L/min	.4L/min	.4L/min	.4L/min	.4L/min	.4L/min		

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.8 L/minute

Condition of Well: GoodRemarks: samples effervesced in vials

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Number of Bottles <u>3X40ml, 6X1L amber, 1X1L Poly, 1X250ml poly</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	
Turbidity Meter <u>Lamotte</u>	Serial Number <u>#R41906</u>	
Spec. Eleo. Cond. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Field Notebook <u>        </u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>#27582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>#00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>Geo - 45 Micron</u>		Discharge Water Contaminized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

 Page 1 of 1

 Date 04-11-05

Well Name <u>W1-5</u>	Screen Interval <u>14.5-19.5</u>	Station Elevation <u>GND</u> TOC <u></u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>Site 1 gw (semi-annual)</u>	Static Water Level (from TOC) / Time <u>5.11/1325</u>	5.13/1326 <u></u> 5.13/1327 <u></u>	
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.12</u>		
Well Location <u>Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>	
Sample Date <u>04-12-05</u>	Reference Elevation <u></u>	PID Reading (TOC) <u>0</u>	
Sampling Personnel <u>Ogle</u>	Static Elevation <u></u>	Notes <u></u>	
<u>Ramos</u>	Well Depth MEAS <u>21.30</u> RPTD <u></u>	Feet of Water <u></u>	
Sample ID <u>86-S1-116</u>	Depth of Bottom of Tubing <u>17.0</u>		
Duplicate ID <u></u>	Depth to Water (w/ Tubing in Well) <u>5.10</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1400	.4	4.3	7.2	272	25.8	70028	8.2	1.25			5.0	
1403	.4	2.0	7.2	272	24.9	72233	8.6	5.5			5.1	
1406	.4	1.8	7.2	37	24.8	71086	8.7	1.8			5.1	
1409	.4	1.6	7.2	128	24.4	71644	8.6	1.25			5.1	
1412	.4	1.0	7.2	113	24.4	71278	8.7	1.3			5.2	
1415	.4	1.2	7.2	101	24.3	72124	8.7	1.55			5.2	
1418	.4	1.0	7.1	98	24.1	72128	8.2	1.8			5.3	
1421	.4	1.0	7.1	97	24.0	72278	8.9	2.0			5.3	
1424	.4	1.0	7.1	96	24.1	72338	8.9	2.3			5.3	
1427	WELL STABILIZED - SAMPLING											

### Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 feet

## SAMPLE PARAMETERS

VOCS	SVOCs	PCBs	Pesticides	Dis. Metals	Dis. Mercury	
SAMPLE RATE						
.1L/min	.4L/min	.4L/min	.4L/min	.4L/min	.4L/min	

### Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

 Condition of Well: Good

 Remarks: Slight turbidity throughout sampling - VOC samples effervesced

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Number of Bottles <u>3X40ml, 6X1L amber,</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	<u>1X1L Poly, 1X250ml poly</u>
Turbidity Meter <u>Lamotte</u>	Serial Number <u></u>	
Spec. Eleo. Cond. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Field Notebook <u></u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>#27582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>#00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>8A0041</u>	
Filter Apparatus <u>Geo - .45 Micron</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 04-11-05

Well Name	W1-3	Screen Interval	13 - 18
Project	Site 1 gw (semi-annual)	Station Elevation	GND TOC
Project No.	1990.088E	Static Water Level (from TOC) / Time	5.05/1435 5.04/1436 5.05/1437
Well Location	Site 1	Average Water Level (from TOC)	5.05
Sample Date	04-12-05	Reference Point	TOC
Sampling Personnel	Ogle	PID Readings (background)	0
	Ramos	PID Reading (TOC)	0
		Static Elevation	Notes
		Well Depth MEAS	22.78 RPTD
			Feet of Water
Sample ID	88-S1-117	Depth of Bottom of Tubing	15.5
Duplicate ID	88-S1-118	Depth to Water (w/ Tubing in Well)	5.00

PURGING													Depth to Water <sup>2</sup> (ft)	Comments
Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading					
									Location	Value				
1530	.4	.46	7.4	287	21.7	76730	3.2	.25			5.01			
1543	.4	.21	7.4	280	21.7	76729	3.2	.45			5.01			
1546	.4	.20	7.4	271	21.8	76729	3.1	.8			5.10			
1549	.4	.10	7.3	260	21.8	76728	1.9	1.1			5.10			
1552	.4	.10	7.3	257	21.8	76715	2.1	1.3			5.10			
1555	.4	.09	7.3	256	21.8	76714	1.9	1.55			5.10			
1558	WELL STABLE - SAMPLING													
				</										

## Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be  $\leq 0.33$  feet

### SAMPLE PARAMETERS

VOCs	SVOCs	PCBs	Pesticides	Dis. Metals	Dis. Mercury		
SAMPLE RATE							
1L/min	4L/min	4L/min	4L/min	4L/min	4L/min		

## Notes:

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: Slight green color - Slight H<sub>2</sub>S odor. VOC samples effervesced.

## FIELD EQUIPMENT

pH Meter _____	Hydrolab _____	Serial Number _____	#R41906 _____	Number of Bottles _____	3X40ml, 6X1L amber, _____
Temperature Meter _____	Hydrolab _____	Serial Number _____	#R41906 _____	_____	1X1L Poly, 1X250ml poly _____
Turbidity Meter _____	Lamotte _____	Serial Number _____	_____	Field Notebook _____	_____
Spec. Elec. Cond. Meter _____	Hydrolab _____	Serial Number _____	#R41906 _____	_____	_____
ORP Meter _____	Hydrolab _____	Serial Number _____	#R41906 _____	Sample Method _____	Low Flow _____
D.O. Meter _____	Hydrolab _____	Serial Number _____	#R41906 _____	_____	_____
Interface Probe _____	Solinst _____	Serial Number _____	#27582 _____	_____	_____
PID/OVA _____	Mini-Rae _____	Serial Number _____	#00320 _____	_____	_____
Pump _____	Geo-Pump _____	Serial Number _____	BA0041 _____	_____	_____
Filter Apparatus _____	Geo - 45 Micron _____	_____	_____	Discharge Water Contaminated	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 04-11-05

Well Name W1-12R

Screen Interval 15-25

Project Site 1 gw (semi-annual)

Station Elevation GND TOC            Immiscible Phases Present ☐ Yes ☒ No

Project No. 1990.086E

Static Water Level (from TOC) / Time 2.29/0600 2.30/0601 2.33/0602

Well Location Site 1

Average Water Level (from TOC) 2.31

Sample Date 04-12-05

Reference Point TOC PID Readings (background) 0

Sampling Personnel Ogle

Reference Elevation            PID Reading (TOC) 0
Ramos

Static Elevation            Notes           

Well Depth MEAS 25.78 RPTD            Feet of Water           

Sample ID 86-S1-113

Depth of Bottom of Tubing 20

Duplicate ID 86-S1-114

Depth to Water (w/ Tubing in Well) 2.30

## PURGING

Time	Discharge Rate (L/min)	Dissolved Oxygen (mg/L)	pH	ENORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water* (ft)	Comments
									Location	Value		
0828	.4	~60	7.1	354	12.8	58818	38	.25			2.32	
0831	.4	36	7.1	326	12.8	56006	30	.58			2.34	
0834	.4	25	7.1	308	12.8	54424	22	.80			2.34	
0837	.4	23	7.1	289	13.0	54004	20	1.0			2.34	
0840	.4	21	7.2	275	13.0	53440	18	1.25			2.33	
0843	.4	19	7.1	261	13.4	51592	15	1.5			2.34	
0846	.4	17	7.1	253	13.6	50669	16	1.75			2.34	
0849	.4	15	7.1	246	13.8	49872	12	2.0			2.34	
0852	.4	15	7.1	244	13.9	49861	12	2.3			2.33	
0855	.4	15	7.1	242	13.9	49547	12	2.5			2.32	
0858	USEL	STABLE	-	SAMPLE								

Notes

1 Purge rate = 0.2 - 0.5 L/min/minute

2 Drawdown should be &lt;0.33 foot

## SAMPLE PARAMETERS

VOCs	SVOCs	PCBs	Pesticides	Dis. Metals	Dis. Mercury		
SAMPLE RATE							
.1L/min	.4L/min	.4L/min	.4L/min	.4L/min	.4L/min		

Notes

1 Sample rate for VOCs analysis = 0.1 - 0.2 L/min/minute

2 Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/min/minute

Condition of Well: Good

Remarks: Slight turbidity - slight H2S odor - samples effervesced in vials

## FIELD EQUIPMENT

pH Meter	Hydrolab	Serial Number	#R41906	Number of Bottles	3X40ml, 6X1L amber, 1X1L Poly, 1X250ml poly
Temperature Meter	Hydrolab	Serial Number	#R41908		
Turbidity Meter	Lamotte	Serial Number			
Spec. Eleo. Cond. Meter	Hydrolab	Serial Number	#R41906	Field Notebook	
ORP Meter	Hydrolab	Serial Number	#R41908		
D.O. Meter	Hydrolab	Serial Number	#R41906	Sample Method	Low Flow
Interface Probe	Solinst	Serial Number	#27582		
PID/OVA	Mini-Rae	Serial Number	#00320		
Pump	Geo-Pump	Serial Number	BA0041		
Filter Apparatus	Geo - 45 Micron			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 04-11-05

Well Name <u>W1-14</u>	Screen Interval <u>4.1-14.1</u>	Station Elevation <u>GND</u> TOC <u></u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>Site 1 gw (semi-annual)</u>	Static Water Level (from TOC) / Time <u>4.80/1455</u>	<u>4.81/1456</u>	<u>4.83/1457</u>
Project No. <u>1990.080E</u>	Average Water Level (from TOC) <u>4.81</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>
Well Location <u>Site 1</u>	Reference Elevation <u></u>	Static Elevation <u></u>	PID Reading (TOC) <u>0</u>
Sample Date <u>04-11-05</u>	Well Depth MEAS <u>17.7</u> RPTD <u></u>	Notes <u></u>	Feet of Water <u></u>
Sampling Personnel <u>Ogle</u>	Depth of Bottom of Tubing <u>9.1</u>	Depth to Water (w/ Tubing in Well) <u>4.80</u>	
<u>Ramos</u>			
Sample ID <u>86-S1-112</u>			
Duplicate ID <u></u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp (°C)	Specific Conduct. (umhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading	Depth to Water <sup>2</sup> (ft)	Comments
1502	.4	.80	7.0	135	21.1	78330	4.1	2.5		4.80	
1505	.4	.40	7.0	122	20.9	79142	6.2	.5		4.81	
1508	.4	.11	7.0	116	21.8	79517	5.8	.8		4.81	
1511	.4	.12	7.0	113	21.6	79335	4.6	1.0		4.80	
1514	.4	.10	7.0	113	21.6	79549	4.3	1.25		4.80	
1517	.4	.09	7.0	106	21.3	79801	3.6	1.5		4.81	
1520	.4	.09	7.0	103	21.3	79980	2.9	1.8		4.81	
1523	.4	.10	7.0	104	21.2	80166	2.9	2.0		4.80	
1526	WELL	STAB	1220	SD	101	PL	NG				

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 feet

## SAMPLE PARAMETERS

VOCs	SVOCs	PCBs	Pesticides	Dis. Metals	Dis. Mercury		
------	-------	------	------------	-------------	--------------	--	--

## SAMPLE RATE

.1L/min	.4L/min	.4L/min	.4L/min	.4L/min	.4L/min		
---------	---------	---------	---------	---------	---------	--	--

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: Slight turbidity - samples effervesced in voas

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Number of Bottles <u>3X40ml, 6X1L amber,</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	<u>1X1L Poly, 1X250ml poly</u>
Turbidity Meter <u>Lamotte</u>	Serial Number <u></u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Field Notebook <u></u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>#27582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>#00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>Geo - 45 Micron</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

 Page 1 of 1

 Date 04-11-05

Well Name <u>W1-15</u>	Screen Interval <u>4.4 - 14.4</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>Site 1 gw (semi-annual)</u>	Static Water Level (from TOC) / Time <u>5.13/0954</u> <u>5.14/0955</u> <u>5.14/0956</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>
Project No. <u>1990.066E</u>	Average Water Level (from TOC) <u>5.14</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>0</u>
Well Location <u>Site 1</u>	Well Depth MEAS <u>17.77</u> RPTD <u>          </u>	Static Elevation <u>          </u>	Notes <u>          </u>
Sample Date <u>04-11-05</u>	Depth of Bottom of Tubing <u>9.4</u>	Feet of Water <u>          </u>	
Sampling Personnel <u>Ogle</u>	Depth to Water (w/ Tubing in Well) <u>5.10</u>		
<u>Ramos</u>			
Sample ID <u>86-S1-109</u>			
Duplicate ID <u>          </u>			

## PURGING

Time	Discharge Rate (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1802	.4	.12	6.9	27.4	25.4	534092	3.4	.2			5.14	
1805	.4	.10	6.8	7.9	25.1	53252	1.5	.5			5.14	
1808	.4	.08	6.8	7.6	24.7	53912	9.9	.7			5.14	
1811	.4	.06	6.8	4.6	24.3	53362	7.8	1.0			5.12	
1814	.4	.05	6.9	2.3	24.3	6192	9.3	1.3			5.10	
1817	.4	.05	6.9	2.4	24.1	61912	8.1	1.5			5.12	
1820	.4	.04	6.9	3.3	24.4	61994	7.6	1.7			5.12	
1823	.4	.04	6.9	3.2	24.5	60511	5.9	1.9			5.12	
1826	.4	.04	6.9	3.7	24.5	60919	6.4	2.2			5.12	
1829	HGLL Sample - Samples Secured											

### Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

VOCs	SVOCs	PCBs	Pesticides	Dis. Metals	Dis. Mercury
SAMPLE RATE					
.1L/min	.4L/min	.4L/min	.4L/min	.4L/min	.4L/min

### Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

 Condition of Well: Good

 Remarks: samples effervesced in voas

### FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Number of Bottles <u>3X40ml, 6X1L amber,</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	<u>1X1L Poly, 1X250ml poly</u>
Turbidity Meter <u>Lamotte</u>	Serial Number <u>          </u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Field Notebook <u>          </u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>#27582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>#00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>Geo - .45 Micron</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Discharge Water Containerized ☒ Yes ☐ No





# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

 Page 1 of 1

 Date 04-11-05

 Well Name W1-19

 Project Site 1 gw (semi-annual)

 Project No. 1990.090E

 Well Location Site 1

 Sample Date 04-11-05

 Sampling Personnel Ogle
Ramos

 Screen Interval 14 - 19

 Station Elevation GND TOC

 Static Water Level (from TOC) / Time 4.55/1258

 Average Water Level (from TOC) 4.55

 Reference Point TOC

Reference Elevation

Static Elevation

 Well Depth MEAS 21.35 RPTD

 Depth of Bottom of Tubing 16.5

 Depth to Water (w/ Tubing in Well) 4.49

 Immiscible Phases Present ☐ Yes ☒ No

 PID Readings (background) 0

 PID Reading (TOC) 0

Notes

Feet of Water

 Sample ID 86-S1-110

Duplicate ID

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1202	1.4	0.52	7.0	337	23.9	23150	2.0	2			4.47	
1205	1.1	0.22	7.1	325	23.3	22854	1.5	5			4.51	
1208	1.1	0.10	7.0	316	22.9	23506	1.1	8			4.51	
1211	1.4	0.09	7.0	301	22.9	23236	1.4	10			4.51	
1214	1.1	0.07	7.0	304	22.8	24241	1.2	13			4.53	
1217	1.4	0.06	7.0	193	22.8	25194	1.8	15			4.50	
1220	1.4	0.05	6.7	189	22.7	25661	1.3	18			4.51	
1223	1.4	0.05	6.9	188	22.8	25778	1.3	21			4.51	
1226	1.4	0.05	6.9	186	22.8	25211	1.3	23			4.51	
1229	WELL STABILIZED - SAMPLING.											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

VOCs	SVOCs	PCBs	Pesticides	Dis. Metals	Dis. Mercury		
------	-------	------	------------	-------------	--------------	--	--

## SAMPLE RATE

1L/min	4L/min	4L/min	4L/min	4L/min	4L/min		
--------	--------	--------	--------	--------	--------	--	--

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

 Condition of Well: Good

Remarks: samples effervesced in voas

## FIELD EQUIPMENT

 pH Meter Hydrolab

 Serial Number #R41906

 Temperature Meter Hydrolab

 Serial Number #R41906

 Turbidity Meter Lamotte

Serial Number

 Spec. Elec. Cond. Meter Hydrolab

 Serial Number #R41906

 ORP Meter Hydrolab

 Serial Number #R41906

 D.O. Meter Hydrolab

 Serial Number #R41906

 Interface Probe Solinst

 Serial Number #27582

 PID/OVA Mini-Rae

 Serial Number #00320

 Pump Geo-Pump

 Serial Number BA0041

 Filter Apparatus Geo - .45 Micron

 Number of Bottles 3X40ml, 6X1L amber,
1X1L Poly, 1X250ml poly

Field Notebook

 Sample Method Low Flow

 Discharge Water Contaminized ☒ Yes ☐ No



# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 04-11-05

Well Name <u>W1-22</u>	Screen Interval <u>NA</u>	Station Elevation <u>GND</u>	TOC <u>Immiscible Phases Present</u> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>Site 1 gw (semi-annual)</u>	Static Water Level (from TOC) / Time <u>2.40/0925</u>	<u>2.40/0928</u>	
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>2.40</u>	Reference Point <u>TOC</u>	
Well Location <u>Site 1</u>	PID Readings (background) <u>0</u>	PID Reading (TOC) <u>0</u>	
Sample Date <u>04-12-05</u>	Notes <u></u>	Well Depth MEAS <u>670</u> RPTD <u></u>	
Sampling Personnel <u>Ogle</u>	Feet of Water <u></u>	Depth of Bottom of Tubing <u>6</u>	
<u>Ramos</u>	Depth to Water (w/ Tubing in Well) <u>2.40</u>		
Sample ID <u>86-S1-115</u>			
Duplicate ID <u></u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EthORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at 25°C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading	Depth to Water <sup>2</sup> (ft)	Comments
0940	.4	.60	6.7	113	20.4	33458	5.0	.25		2.36	
0943	.4	.30	6.9	101	21.0	32128	4.7	.5		2.38	
0946	.4	.16	6.9	101	21.3	31463	2.7	.8		2.40	
0949	.4	.15	6.7	103	21.6	30401	2.2	1.0		2.39	
0952	.4	.13	7.0	104	22.0	28303	2.2	1.3		2.41	
0955	.4	.12	7.0	104	22.3	27592	2.2	1.5		2.40	
0958	.4	.11	7.0	104	22.5	27468	2.2	1.8		2.39	
1001	.4	.10	7.0	102	22.6	27441	2.3	2.1		2.41	
1004	.4	.09	7.0	101	22.6	27374	2.3	2.3		2.40	
1007	.4	.09	7.0	100	22.6	27540	2.2	2.5		2.41	
1010	WELL STABLE - SAMPLING										

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

VOCs	SVOCs	PCBs	Pesticides	Dis. Metals	Dis. Mercury	
------	-------	------	------------	-------------	--------------	--

## SAMPLE RATE

.1L/min	.4L/min	.4L/min	.4L/min	.4L/min	.4L/min	
---------	---------	---------	---------	---------	---------	--

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analyses = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: 

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Number of Bottles <u>3X40ml, 6X1L amber,</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	<u>1X1L Poly, 1X250ml poly</u>
Turbidity Meter <u>Lamotte</u>	Serial Number <u></u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Field Notebook <u></u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>#R41900</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>#27582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>#00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>Geo - .45 Micron</u>		

Discharge Water Containerized ☒ Yes ☐ No



**OCTOBER 2005**



## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 10/3/05

Well Name W1-5 Screen Interval 14.5-19.5  
Project CTO 88-Site 1, Semi-Annual Station Elevation GND TOC \_\_\_\_\_ Immiscible Phases Present ☐ Yes ☒ No  
Project No. 1990.086E Static Water Level (from TOC) / Time 5.69/1504 5.69/1504 5.69/1504  
Well Location Moffett, Site 1 Average Water Level (from TOC) 5.69  
Sample Date 10/6/05 Reference Point TOC PID Readings (background) Oppw  
Sampling Personnel D. HARRISON Reference Elevation \_\_\_\_\_ PID Reading (TOC) Oppw  
B. Ogile Station Elevation \_\_\_\_\_ Notes \_\_\_\_\_  
Well Depth MEAS 21.30 RPTD \_\_\_\_\_ Feet of Water \_\_\_\_\_  
Sample ID 88-S1-131 Depth of Bottom of Tubing 17  
Duplicate ID 86-S1-132 Depth to Water (w/ Tubing in Well) 5.68

## PURGING

[illegible]

### Notes

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be  $<0.33$  foot

### SAMPLE PARAMETERS

VOCS	SVOCs	PEST.	PCBS	D.MERC	D.METALS	
SAMPLE RATE						
4	4	4	4	4	4	

## Notation

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: Clear / slight H2S odor - VOC samples collected

## FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#R41334	Number of Bottles	3x40mLV
Temperature Meter	HYDROLAB	Serial Number	#R41334		4X1LA
Turbidity Meter	HYDROLAB	Serial Number	LaMOTTE		1XLP
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#R41334		1X250mLP
ORP Meter	HYDROLAB	Serial Number	#R41334	Field Notebook	Pgs. 10 + 10 z
D.O. Meter	HYDROLAB	Serial Number	#R41334	Sample Method	Low Flow
Interface Probe	SOLINST	Serial Number	#25592		
PID/OVA	MINI-RAE	Serial Number	#00320		
Pump	GEO-PUMP	Serial Number	BA0041		
Filter Apparatus	GEO-45 MICRON		Metals & D. Metals	Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 10/3/05

Well Name <u>W1-g</u>	Screen Interval <u>13-18</u>	Station Elevation <u>GND</u> TOC	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, Semi-Annual</u>	Static Water Level (from TOC) 1 Time <u>5.76/1507</u> <u>5.76/1508</u> <u>5.76/1509</u>	Average Water Level (from TOC) <u>5.76</u>	
Project No. <u>1290 088E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>App</u>	
Well Location <u>Moffett, Site 1</u>	Reference Elevation	PID Reading (TOC) <u>App</u>	
Sample Date <u>10/16/07</u>	Static Elevation	Notes	
Sampling Personnel <u>D. HARRISON</u>	Well Depth MEAS <u>22.47</u> RPTD	Feet of Water	
<u>B. Ogle</u>	Depth of Bottom of Tubing <u>15.5</u>		
Sample ID <u>86-S1-133</u>	Depth to Water (w/ Tubing in Well) <u>5.76</u>		
Duplicate ID <u>86-S1-134</u>			

## PURGING

[illegible]

**Notes:**

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be  $\leq 0.33$  feet

### SAMPLE PARAMETERS

VOCS	SVOCs	PEST.	PCBS	D.MERC	D.METALS		
------	-------	-------	------	--------	----------	--	--

**SAMPLE RATE**

1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---

Electron

1 Sample rate for VOCs analysis = 0.1 × 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: Green / H2S odor

## FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#R41334	Number of Bottles	6X40mLV
Temperature Meter	HYDROLAB	Serial Number	#R41334		8X1LA
Turbidity Meter	HYDROLAB	Serial Number	LaMOTTE		2X1P
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#R41334		2X250mLP
ORP Meter	HYDROLAB	Serial Number	#R41334	Field Notebook	Pg. 102 + 103
D.O. Meter	HYDROLAB	Serial Number	#R41334		
Interface Probe	SOLINST	Serial Number	#25582	Sample Method	Low Flow
PID/OVA	MINI-RAE	Serial Number	#00320		
Pump	GEQ-PUMP	Serial Number	BA0041		
Filter Apparatus	GEQ-45 MICRON			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 10/3/05

Well Name <u>W1-12R</u>	Screen Interval <u>15-25</u>	Station Elevation <u>GND</u> TOC	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-5ite 1 Semi-Annual</u>	Station Water Level (from TOC) / Time <u>3.04/1442</u> <u>3.04/1443</u> <u>3.04/1444</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>3.04</u>		
Well Location <u>Moffett Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0ppm</u>	
Sample Date <u>10/6/05</u>	Reference Elevation _____	PID Reading (TOC) <u>0ppm</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation _____	Notes _____	
<u>B. Ogle</u>	Well Depth MEAS <u>26.64</u> RPTD _____	Feet of Water _____	
Sample ID <u>86-S1-129</u>	Depth of Bottom of Tubing <u>20</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>3.04</u>		

## PURGING

[illegible]

### Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

VOCS	SVOCs	PEST.	PCBS	D.MERC	D.METALS
1	1	1	1		

## Notes

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis ± purge rate = 0.2 - 0.5 L/minute

Condition of Well, Good

Remarks: Turbid / Strong H<sub>2</sub>S odor

## FIELD EQUIPMENT

PH Meter HYDROLAB Serial Number #R41334 Number of Bottles 3X40mLV  
 Temperature Meter HYDROLAB Serial Number #R41334 4X1LA  
 Turbidity Meter HYDROLAB Serial Number LaMOTTE 1XLP  
 Spec. Elec. Cond. Meter HYDROLAB Serial Number #R41334 1X250mLP  
 ORP Meter HYDROLAB Serial Number #R41334 Field Notebook Pg. 100  
 D.O. Meter HYDROLAB Serial Number #R41334  
 Interface Probe SOLINST Serial Number #25582  
 PID/OVA MINI-RAE Serial Number #00320  
 Pump GEO-PUMP Serial Number BA0041  
 Filter Apparatus GEO-45 MICRON - D. Metcalf + D. Metc Sample Method Low Flow  
 Discharge Water Containerized ☒ Yes ☐ No





TETRA TECH FW, INC.

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 10/3/05

Well Name <u>W1-14</u>	Screen Interval <u>4.1-4.1</u>	
Project <u>CTQ 86 Site 1, Semi-Annual</u>	Station Elevation <u>GND</u> TOC <u>                    </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <u>1990.085E</u>	Static Water Level (from TOC) / Time <u>5.77/1432</u> <u>5.17/1433</u> <u>5.77/1434</u>	
Well Location <u>Moffett, Site 1</u>	Average Water Level (from TOC) <u>5.77</u>	
Sample Date <u>10/6/95</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppn</u>
Sampling Personnel <u>D. HARRISON</u>	Reference Elevation <u>                    </u>	PID Reading (TOC) <u>Oppn</u>
<u>B. Ogle</u>	Static Elevation <u>                    </u>	Notes <u>                    </u>
	Well Depth MEAS <u>17.48</u> RPTD <u>                    </u>	Feet of Water <u>                    </u>
Sample ID <u>86-S1-126</u>	Depth of Bottom of Tubing <u>9.1</u>	
Duplicate ID <u>MSMSD</u>	Depth to Water (w/ Tubing in Well) <u>5.77</u>	

## PURGING

[illegible]

## Notes

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

VOCS	SVOCs	PEST	PCBS	D MERC	D METALS		
------	-------	------	------	--------	----------	--	--

**SAMPLE RATE**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

### References

- 1 Sample rate for VOCs analysis = 0.1 - 0.2 L/minute  
2 Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: Clear / slight H<sub>2</sub>S odor - vol samples after vspec

## FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#R41334	Number of Bottles	9X40ml V
Temperature Meter	HYDROLAB	Serial Number	#R41334		12X1LA
Turbidity Meter	HYDROLAB	Serial Number	LaMOTTE		3XLP
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#R41334		3X250mLP
ORP Meter	HYDROLAB	Serial Number	#R41334	Field Notebook	pg 79
D.O. Meter	HYDROLAB	Serial Number	#R41334		
Interface Probe	SOLINST	Serial Number	#25582	Sample Method	Low Flow
PID/OVA	MINI-RAE	Serial Number	#00320		
Pump	GEO-PUMP	Serial Number	BAC041		
Filter Apparatus	GEO-45 MICRON		D. Metzger & D. Metzger	Discharge Water Contaminated	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 10/3/05

Well Name <u>W1-15</u>	Screen Interval <u>4.4-14.4</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTQ B6-Site 1, Semi-Annual</u>	Static Water Level (from TOC) / Time <u>5:58/1403</u> <u>5:59/1404</u> <u>5:59/1405</u>		
Project No. <u>1990-085E</u>	Average Water Level (from TOC) <u>5.90</u>		
Well Location <u>Moffett - Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Open</u> <u>Open</u>	
Sample Date <u>10/4/05</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>Open</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>B. Ogile</u>	Well Depth MEAS <u>7.40</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>B6-S1-125</u>	Depth of Bottom of Tubing <u>9.4</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.70</u>		

## PLUGGING

[illegible]

## Notes

1. Pump rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

VOCS	SVOCS	PEST.	PCBS	D.MERC	D.METALS		
<b>SAMPLE RATE</b>							
1 c/m	.4	.4	.4	.4	.4		

**Notes**

1. Sample rate for VOCs analysis = 0.1 - 0.2 U/minute
2. Sample rate for non-VOCs analysis = purge rate  $\approx$  0.2 - 0.5 U/minute

Condition of Well: Good

Remarks: Clear/odorless - VOC samples after used

## FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#R41334
Temperature Meter	HYDROLAB	Serial Number	#R41334
Turbidity Meter	HYDROLAB	Serial Number	LaMOTTE
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#R41334
ORP Meter	HYDROLAB	Serial Number	#R41334
D.O. Meter	HYDROLAB	Serial Number	#R41334
Interface Probe	SOLINST	Serial Number	#25582
PID/OVA	MINI-RAE	Serial Number	#00320
Pump	GEO-PUMP	Serial Number	BAC0041
Filter Apparatus	GEO-45 MICRON - 0	Serial Number	Meals + 0. Merc.

Number of Bottles 3X40mL  
4X1LA  
1XLP  
1X250mLP  
 Field Notebook Pgs. 96+97  
 Sample Method Low Flow  
 Discharge Water Containerized ☒ Yes ☐ No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 10/3/05

Well Name <u>W1-16</u>	Screen Interval <u>5.4-15.4</u>	Station Elevation <u>GND</u> TOC	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 88-Site 1, Semi-Annual</u>	Static Water Level (from TOC)/Time <u>7.01/1517</u>	<u>7.01/1518</u>	<u>7.01/1518</u>
Project No. <u>1990.066E</u>	Average Water Level (from TOC) <u>7.01</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppen</u>
Well Location <u>Moisset-Site 1</u>	Reference Elevation	Static Elevation	PID Reading (TOC) <u>Oppen</u>
Sample Date <u>10/6/05</u>	Sampling Personnel <u>D. HARRISON</u>	Well Depth MEAS <u>19.24</u> RPTD	Notes
<u>B.Ogie</u>	Sample ID <u>88-S1-138</u>	Depth of Bottom of Tubing <u>10.4</u>	Feet of Water
	Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>7.01</u>	

## PURGING

[illegible]

## Notions

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be  $\leq 0.33$  foot

### SAMPLE PARAMETERS

VOCS	SVOCS	PEST.	PCBS	D.MERC	D.METALS	
SAMPLE RATE						
1	1	1	1	1	1	

## NOTES

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: Turbid / Slight H<sub>2</sub>S odor - VOC samples effervesced

## FIELD EQUIPMENT

PH Meter	HYDROLAB	Serial Number	#R41334	Number of Bottles	3X40mL V
Temperature Meter	HYDROLAB	Serial Number	#R41334		4X1LA
Turbidity Meter	HYDROLAB	Serial Number	LaMOTTE		1XLP
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#R41334		1X250mLP
ORP Meter	HYDROLAB	Serial Number	#R41334	Field Notebook	Pg 104
D.O. Meter	HYDROLAB	Serial Number	#R41334		
Interface Probe	SOLINST	Serial Number	#25582	Sample Method	Low Flow
PID/OVA	MINI-RAE	Serial Number	#00320		
Pump	GEO-PUMP	Serial Number	BA0041		
Filter Apparatus	GEO-45 MICRON	Serial Number	D. Marks & D. Mac		
				Discharge Water Contaminated	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 10/3/05

Well Name <u>W1-19</u>	Screen Interval <u>14-19</u>	
Project <u>CTO 85-Site 1, Semi-Annual</u>	Station Elevation <u>GND</u> TOC _____	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No <u>1990-088E</u>	Static Water Level (from TOC) / Time <u>5.37/1428</u> <u>5.37/1429</u> <u>5.37/1430</u>	
Well Location <u>Moffett, Site 1</u>	Average Water Level (from TOC) <u>5.37</u>	
Sample Date <u>10/6/05</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>8ppm</u>
Sampling Personnel <u>D. HARRISON</u>	Reference Elevation _____	PID Reading (TOC) <u>8ppm</u>
<u>M. RAMOS</u>	Static Elevation _____	Notes _____
	Well Depth MEAS <u>21.28</u> RPTD _____	Feet of Water _____
Sample ID <u>06-S1-126</u>	Depth of Bottom of Tubing <u>19.5</u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.57</u>	

## PURGING

[illegible]

**Notes:**

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

VOCS	SVOCs	PEST.	PCBS	D.MERC	D.METALS		
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**SAMPLE RATE**

1	4	4	4	4	4		
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## Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: Clear / Odorless VOC samples effervesced

## FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#R41334	Number of Bottles	3x40mLV
Temperature Meter	HYDROLAB	Serial Number	#R41334		4X1LA
Turbidity Meter	HYDROLAB	Serial Number	LaMOTTE		1XLP
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#R41334		1X250mLP
ORP Meter	HYDROLAB	Serial Number	#R41334	Field Notebook	pg 93
D.O. Meter	HYDROLAB	Serial Number	#R41334		
Interface Probe	SOLINST	Serial Number	#25582	Sample Method	Low Flow
PID/OVA	MINI-RAE	Serial Number	#00320		
Pump	GEO-PUMP	Serial Number	BA0041		
Filter Apparatus	GEO.-45 MICRON	Serial Number	D. Metek & D. Wier	Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 10/3/05Well Name W1-22Project CTO 86-Site 1, Semi-AnnualProject No. 1990.056EWell Location Moffett-Site 1Sample Date 10/6/05Sampling Personnel D. HARRISONB. OgleSample ID 86-S1-130Duplicate ID N/AScreen Interval N/AStation Elevation GND TOCStatic Water Level (from TOC) / Time 3.69/1418Average Water Level (from TOC) 3.69Reference Point TOC

Reference Elevation

Static Elevation

Well Depth MEAS 6.75 RPTD

Depth of Bottom of Tubing

Depth to Water (w/ Tubing in Well) 3.69

Immiscible Phases Present

☐ Yes ☒ NoPID Readings (background) OppmPID Reading (TOC) Oppm

Notes

Feet of Water

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1120	.4	0.34	6.3	61	23.9	46217	370	.2			3.72	
1123	.4	0.38	6.3	55	23.8	45727	176	.4			3.72	
1126	.4	0.27	6.5	48	23.6	45831	118	.6			3.73	
1129	.4	0.21	6.3	45	23.5	45264	83	.8			3.73	
1132	.4	0.16	6.3	40	23.4	44827	45	1.0			3.74	
1135	.4	0.13	6.3	38	23.4	44016	18	1.2			3.74	
1138	.4	0.12	6.3	37	23.4	43862	16	1.4			3.75	
1140	.4	0.10	6.3	37	23.4	43570	15	1.6			3.75	
1145	Collect	Sample										

## Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 feet

## SAMPLE PARAMETERS

VOCS	SVOCs	PEST.	PCBS	DMERC	DMETALS		
1	.4	.4	.4	.4	.4		

## Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Thick Slight H2S odor

## FIELD EQUIPMENT

pH Meter	<u>HYDROLAB</u>	Serial Number	<u>#R41334</u>
Temperature Meter	<u>HYDROLAB</u>	Serial Number	<u>#R41334</u>
Turbidity Meter	<u>HYDROLAB</u>	Serial Number	<u>LaMOTTE</u>
Spec. Elec. Cond. Meter	<u>HYDROLAB</u>	Serial Number	<u>#R41334</u>
ORP Meter	<u>HYDROLAB</u>	Serial Number	<u>#R41334</u>
D.O. Meter	<u>HYDROLAB</u>	Serial Number	<u>#R41334</u>
Interface Probe	<u>SOLINST</u>	Serial Number	<u>#25592</u>
PID/OVA	<u>MINI-RAE</u>	Serial Number	<u>#00320</u>
Pump	<u>GEO-PUMP</u>	Serial Number	<u>BA0041</u>
Filter Apparatus	<u>GEO-45 MICRON</u>	<u>- D. Metals + D. Merc</u>	

Number of Bottles	<u>3x40mL</u>
	<u>4x1LA</u>
	<u>1xLP</u>
	<u>1x250mL</u>
Field Notebook	<u>pgs 180 + 101</u>
Sample Method	<u>Low Flow</u>

Discharge Water Containerized ☒ Yes ☐ No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 10/3/05

Well Name W1-23 Screen Interval N/A  
Project CTO 88-Site 1, Semi-Annual Station Elevation GND TCC Immiscible Phases Present ☐ Yes ☒ No  
Project No. 1950.080E Static Water Level (from TOC) / Time 5.64/1438 5.64/1439 5.64/1440  
Well Location Moffett-Site 1 Average Water Level (from TOC) 5.64  
Sample Date \_\_\_\_\_ Reference Point TOC PID Readings (background) Off  
Sampling Personnel D. HARRISON Reference Elevation \_\_\_\_\_ PID Reading (TOC) Off  
B. Ogile Static Elevation \_\_\_\_\_ Notes \_\_\_\_\_  
Well Depth MEAS 3.94 RPTD 6.0 Feet of Water \_\_\_\_\_  
Sample ID 88-S1-127 Depth of Bottom of Tubing N 5.85  
Duplicate ID N/A Depth to Water (w/ Tubing in Well) 5.64

## PURGING

[illegible]

**News**

1. Purge rate = 0.2 - 0.5 U/minute
2. Downflow shall be  $\leq 0.33$  feet

### SAMPLE PARAMETERS

VOCS	SVOCs	PEST.	PCBS	D.MERC	D.METALS		
SAMPLE RATE							

## Notes

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: Turbid / Strong No Scales

## FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#R41334	Number of Bottles	3X40mL V
Temperature Meter	HYDROLAB	Serial Number	#R41334		4X1LA
Turbidity Meter	HYDROLAB	Serial Number	LaMOTTE		1XLP
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#R41334		1X250mLP
ORP Meter	HYDROLAB	Serial Number	#R41334	Field Notebook	Pg 99
D.O. Meter	HYDROLAB	Serial Number	#R41334		
Interface Probe	SOLINST	Serial Number	#25582	Sample Method	Low Flow
PID/OVA	MINI-RAE	Serial Number	#00320		
Pump	GEQ-PUMP	Serial Number	BA0041		
Filter Apparatus	GEQ-45 MICRON			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 10/3/05

Well Name <u>W1-24</u>	Screen Interval <u>6-16</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTQ 88-Site 1, Semi-Annual</u>	Station Elevation <u>GND</u> TOC	
Project No. <u>1690.089E</u>	Static Water Level (from TOC) / Time <u>7:34/1513</u> <u>7:54/1513</u> <u>7:54/1514</u>	
Well Location <u>Moffett, Site 1</u>	Average Water Level (from TOC) <u>7:34</u>	
Sample Date <u>10/6/05</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>None</u>
Sampling Personnel <u>D. HARRISON</u>	Reference Elevation	PID Reading (TOC) <u>None</u>
<u>B. Ogle</u>	Static Elevation	Notes
	Well Depth MEAS <u>20.25</u> RPTD	Feet of Water
Sample ID <u>88-S1-135</u>	Depth of Bottom of Tubing <u>11</u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>7:34</u>	

## PURGING

[illegible]

**Notes**

1. Purge rate = 0.2 - 0.5 U/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

VOCS	SVOCs	PEST.	PCBS	D.MERC	D.METALS		
<b>SAMPLE RATE</b>							
1	4	4	4	4	4		

**Acknowledgments**

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: Clear/slight H<sub>2</sub>S odor - VOC. Samples effervesced.

## FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#R41334
Temperature Meter	HYDROLAB	Serial Number	#R41334
Turbidity Meter	HYDROLAB	Serial Number	LaMOTTE
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#R41334
ORP Meter	HYDROLAB	Serial Number	#R41334
D.O. Meter	HYDROLAB	Serial Number	#R41334
Interface Probe	SOLINST	Serial Number	#25582
PID/OVA	MINI-RAE	Serial Number	#00320
Pump	GEO-PUMP	Serial Number	B40041
Filter Apparatus	GEO-45 MICRON	- 5. Metals + 8. More.	

Number of Bottles 3X40mLV  
4X1LA  
1XLP  
1X250mLP  
 Field Notebook Pgs 103 + 104  
 Sample Method Low Flow  
 Discharge Water Contaminized ☒ Yes ☐ No

## **SUPPLEMENTAL SAMPLING DATA**



**JANUARY 2005**



TETRA TECH

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date January 31, 2005

Well Name <u>W1-1R</u>	Screen Interval <u>14.3 - 24.3</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 88 Site 1 R7/05</u>	Station Elevation <u>GND</u> TOC <u></u>	
Project No. <u>1990.086E</u>	Static Water Level (from TOC) / Time <u>7.75/1201</u> <u>7.75/1202</u> <u>7.75/1203</u>	
Well Location <u>Site 1</u>	Average Water Level (from TOC) <u>7.77</u>	
Sample Date <u>January 31, 2005</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>
Sampling Personnel <u>Ogle</u>	Reference Elevation <u></u>	PID Reading (TOC) <u>0</u>
<u>Ramos</u>	Station Elevation <u></u>	Notes <u></u>
	Well Depth MEAS <u>27.45</u> RPTD <u></u>	Feet of Water <u></u>
Sample ID <u>88-S1-084</u>	Depth of Bottom of Tubing <u>19.3</u>	
Duplicate ID <u>NA</u>	Depth to Water (w/ Tubing in well) <u>19.3</u>	

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	En/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1458	0.4	0.21	6.6	236	22.6	66500	1.2	0.25				
1458	0.4	0.11	6.6	218	22.3	67305	1.4	0.5				
1501	0.4	0.11	6.6	222	21.7	67109	1	0.75				
1504	0.4	0.11	6.6	226	21.4	66940	0.98	1				
1507	0.4	0.1	6.6	234	21.1	66372	0.97	1.3				
1510	0.4	0.09	6.6	240	20.8	66130	0.95	1.5				
1513	0.4	0.09	6.6	242	20.8	66136	0.95	1.8				
1516	0.4	0.09	6.6	243	20.7	66160	0.9	2				
1519	0.4	0.09	6.6	242	20.8	66161	0.9	2.25				
1522	0.4	0.09	6.6	242	20.6	66180	0.88	2.6				
1525	Well stabilized - began sampling											

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

2 X SVOCs 1 X DIS. MET.

## SAMPLE RATE

0.4 0.4

## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Still need to paint

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Number of Bottles <u>2 X 11A</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	<u>1 X 250ml poly</u>
Turbidity Meter <u>Hydrolab</u>	Serial Number <u>3658</u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Field Notebook <u>65</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>25592</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>NA</u>		Discharge Water Contaminated <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date January 31, 2005

Well Name <u>W1-5</u>	Screen Interval <u>14.5 - 19.5</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86 Site 1 R7/05</u>	Station Elevation <u>GND</u> TOC <u></u>	
Project No. <u>1990-086E</u>	Static Water Level (from TOC) / Time <u>5.32/1242</u> <u>5.32/1242</u>	
Well Location <u>Site 1</u>	Average Water Level (from TOC) <u>5.32</u>	
Sample Date <u>February 2, 2005</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>
Sampling Personnel <u>Ogle</u>	Reference Elevation <u></u>	PID Reading (TOC) <u>0</u>
<u>Ramos</u>	Static Elevation <u></u>	Notes <u></u>
	Well Depth MEAS <u>19.30</u> RPTD <u></u>	Feet of Water <u></u>
Sample ID <u>86-S1-092</u>	Depth of Bottom of Tubing <u>17</u>	
Duplicate ID <u>NA</u>	Depth to Water (w/ Tubing in well) <u>5.3</u>	

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1345	0.4	0.54	7	294	20.63	58250	1.3	0.25				
1348	0.4	0.14	7	293	20.04	57034	0.9	0.5				
1351	0.4	0.09	7	291	19.94	57043	0.8	0.75				
1354	0.4	0.08	7	282	19.51	57940	0.8	1				
1357	0.4	0.07	7	258	19.85	57716	0.2	1.3				
1400	0.4	0.06	7	286	19.98	57700	0.2	1.6				
1403	0.4	0.05	7	261	19.89	57680	0.2	1.8				
1406	0.4	0.06	7	263	19.83	57739	0.2	2				
1415	0.4	0.06	7	263	19.83	57739	0.2	2				
1415	0.4	0.06	7	263	19.83	57739	0.2	2				

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.35 foot

## SAMPLE PARAMETERS

2 X SVOCs	1 X Dis. Mer.						
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## SAMPLE RATE

0.4	0.4						
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: 

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Number of Bottles <u>2 X 1L</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	<u>1 X 250ml poly</u>
Turbidity Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Field Notebook <u>70</u>
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Sample Method <u>Low Flow</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
Interface Probe <u>Solinst</u>	Serial Number <u>25582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>NA</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date January 31, 2005

Well Name <u>W1-8</u>	Screen Interval <u>13 - 18</u>	Station Elevation <u>GND</u> TOC <u>Immiscible Phases Present</u> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 88 Site 1 R7/05</u>	Static Water Level (from TOC) / Time <u>5.35/1244</u>	<u>5.34/1245</u> <u>5.35/1246</u>
Project No. <u>1990 . 086E</u>	Average Water Level (from TOC) <u>5.35</u>	
Well Location <u>Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>
Sample Date <u>February 2, 2005</u>	Reference Elevation	PID Reading (TOC) <u>0</u>
Sampling Personnel <u>Ogle</u>	Static Elevation	Notes
<u>Ramos</u>	Well Depth MEAS <u>22.68</u> RPTD	Feet of Water
Sample ID <u>86-S1-093</u>	Depth of Bottom of Tubing <u>15.5</u>	
Duplicate ID <u>NA</u>	Depth to Water (w/ Tubing in well) <u>5.35</u>	

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1425	0.4	0.23	7.4	295	23.32	39612	1.4	0.25				
1428	0.4	0.15	7.4	293	23.67	39304	1.4	0.5				
1431	0.4	0.1	7.4	291	23.94	38481	1.4	0.75				
1434	0.4	0.09	7.4	288	24.05	36986	1.3	1				
1437	0.4	0.08	7.4	278	23.59	36891	1.3	1.3				
1440	0.4	0.08	7.4	281	23.66	36559	1.3	1.6				
1443	0.4	0.09	7.3	278	23.59	36534	1.3	1.8				
1446	0.4	0.08	7.3	277	23.58	36500	1.2	2				
1449	0.4	0.09	7.3	260	23.59	36496	1.2	2.25				
1452	0.4	0.09	7.3	279	23.6	36491	1.2	2.5				
1500 stop												

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown should be &lt; 0.33 feet

## SAMPLE PARAMETERS

2 X SVOCs	1 X Dis. Mer.											
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## SAMPLE RATE

0.4	0.4											
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks:

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Number of Bottles <u>2 X 1L</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	<u>1 X 250ml poly</u>
Turbidity Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Field Notebook <u>70</u>
Spec. Elec. Cond Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Sample Method <u>Low Flow</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
Interface Probe <u>Solinst</u>	Serial Number <u>25582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>NA</u>		Discharge Water Contaminized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



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Date January 31, 2005

Well Name <u>W1-12R</u>	Screen Interval <u>15 - 25</u>	Station Elevation <u>GND</u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86 Site 1 R705</u>	Static Water Level (from TOC) / Time <u>2.58/1233</u> <u>2.58/1234</u> <u>2.58/1235</u>		
Project No. <u>1890 068E</u>	Average Water Level (from TOC) <u>2.58</u>		
Well Location <u>Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>	
Sample Date <u>February 1, 2005</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0</u>	
Sampling Personnel <u>Ogle</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
<u>Ramos</u>	Well Depth MEAS <u>25.69</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
Sample ID <u>88-S1-089</u>	Depth of Bottom of Tubing <u>20</u>		
Duplicate ID <u>86-S1-090</u>	Depth to Water (w/ Tubing in well) <u>2.58</u>		

## PURGING

[illegible]

1. Purge rate = 0.2 - 0.5 L/minute
2. Desiccant shall be  $\leq 0.3\%$  wet.

### SAMPLE PARAMETERS

4 X SVOCs	2 X Dis. Mer.				
SAMPLE RATE					
0.4	0.4				

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: \_\_\_\_\_ Good

Remarks:

### FIELD EQUIPMENT

pH Meter _____ Hydrolab _____	Serial Number _____ 3656 _____	Number of Bottles _____ 4 X 1LA _____
Temperature Meter _____ Hydrolab _____	Serial Number _____ 3656 _____	_____ 2 X 250ml poly _____
Turbidity Meter _____ Hydrolab _____	Serial Number _____ 3656 _____	
Spec. Elec. Cond. Meter _____ Hydrolab _____	Serial Number _____ 3656 _____	Field Notebook <u>68</u>
ORP Meter _____ Hydrolab _____	Serial Number _____ 3656 _____	
D.C. Meter _____ Hydrolab _____	Serial Number _____ 3656 _____	Sample Method _____ Low Flow _____
Interface Probe _____ Solfast _____	Serial Number _____ 25582 _____	
PID/OVA _____ Mini-Rae _____	Serial Number _____ 00320 _____	
Pump _____ Geo-Pump _____	Serial Number _____ BA0041 _____	
Filter Apparatus _____ NA _____		Discharge Water Contaminated <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Discharge Water Containerized	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
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TECHNICAL FORM

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

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Date January 31, 2005

Well Name <u>W1-14</u>	Screen Interval <u>4.1 - 14.1</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 85 Site 1 R705</u>	Station Elevation <u>GND</u> TOC <u></u>	
Project No <u>1990. 088E</u>	Static Water Level (from TOC) / Time <u>5.21/1219</u> <u>5.22/1220</u> <u>5.20/1221</u>	
Well Location <u>Site 1</u>	Average Water Level (from TOC) <u>5.21</u>	
Sample Date <u>February 1, 2005</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>
Sampling Personnel <u>Ogle</u>	Reference Elevation <u></u>	PID Reading (TOC) <u>0</u>
<u>Ramos</u>	Static Elevation <u></u>	Notes <u></u>
	Well Depth MEAS <u>17.40</u> RPTD <u></u>	Feet of Water <u></u>
Sample ID <u>86-S1-088</u>	Depth of Bottom of Tubing <u>9.1</u>	
Duplicate ID <u>NA</u>	Depth to Water (w/ Tubing in well) <u>5.21</u>	

PURGING												
Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1329	0.4	0.22	6.9	161	23.3	54472	32	0.25				
1328	0.4	0.12	7	158	22.9	54757	18	0.5				
1331	0.4	0.11	7	152	22.7	56058	15	0.75				
1334	0.4	0.07	7	148	33.7	55170	13	1				
1337	0.4	0.07	7	149	22.6	55220	12	1.3				
1340	0.4	0.06	7	122	22.6	55289	13	1.6				
1343	0.4	0.07	7	65	22.6	57362	10	1.8				
1346	0.4	0.07	7	88	22.6	55111	7	2				
1348	0.4	0.07	7	85	22.6	55090	4.5	2.25				
1352	0.4	0.07	7	84	22.6	55118	4	2.5				
1400 stop												

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

3 X SVOCs	1 X Dis. Mer.											
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## SAMPLE RATE

0.4	0.4											
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks:

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Number of Bottles <u>3 X 1L</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	<u>1 X 250ml poly</u>
Turbidity Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Field Notebook <u>67</u>
Spec Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Sample Method <u>Low Flow</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
Interface Probe <u>Solinst</u>	Serial Number <u>25582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>NA</u>		Discharge Water Contaminized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

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Well Name <u>W1-15</u>	Screen Interval <u>4.4 - 14.4</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86 Site 1 R7/05</u>	Station Elevation <u>GND</u> TOC <u></u>	
Project No. <u>1990.086E</u>	Static Water Level (from TOC) / Time <u>5.43/1207</u> <u>5.43/1208</u> <u>5.42/1209</u>	
Well Location <u>Site 1</u>	Average Water Level (from TOC) <u>5.43</u>	
Sample Date <u>February 1, 2005</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>
Sampling Personnel <u>Ogle</u>	Reference Elevation <u></u>	PID Reading (TOC) <u>0</u>
<u>Ramos</u>	Static Elevation <u></u>	Notes <u></u>
	Well Depth MEAS <u>17.76</u> RPTD <u></u>	Feet of Water <u></u>
Sample ID <u>86-S1-085</u>	Depth of Bottom of Tubing <u>9.4</u>	
Duplicate ID <u>NA</u>	Depth to Water (w/ Tubing in well) <u>5.4</u>	

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
754	0.4	0.47	6.8	206	12.7	54859	20	0.25				
757	0.4	0.2	6.8	159	13.3	55033	19	0.5				
800	0.4	0.13	6.8	67	14.9	55062	4.9	0.75				
803	0.4	0.11	6.8	60	15.3	54966	3.3	1				
806	0.4	0.09	6.7	49	16.7	56833	3	1.3				
809	0.4	0.09	6.7	44	16.9	50850	3	1.5				
812	0.4	0.08	6.7	48	17	50623	1.8	1.8				
815	0.4	0.08	6.7	44	17	50613	1.8	2				
818	0.4	0.08	6.7	44	17.1	50589	1.7	2.25				
821	Well stabilized - began sampling											

### Notes

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be < 0.53 foot

### SAMPLE PARAMETERS

6 X SVOCs	3 X Dis. Mer.											
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### SAMPLE RATE

0.4	0.4											
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### Notes

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: 

### FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Number of Bottles <u>6 X 1 LA</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	<u>3 X 250ml poly</u>
Turbidity Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Field Notebook <u>66</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinef</u>	Serial Number <u>25582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>NA</u>		Discharge Water Contaminized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

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Well Name <u>WI-16</u>	Screen Interval <u>5.4-15.4</u>	Station Elevation <u>GND</u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 88 Site 1 R705</u>	Static Water Level (from TOC) / Time <u>7.60/1255</u>	<u>7.50/1256</u>	<u>7.39/1257</u>
Project No. <u>1990 - 086E</u>	Average Water Level (from TOC) <u>7.50</u>		
Well Location <u>Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>	
Sample Date <u>February 2, 2005</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0</u>	
Sampling Personnel <u>Ogle</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
<u>Ramos</u>	Well Depth MEAS <u>18.22</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
Sample ID <u>86-S1-065</u>	Depth of Bottom of Tubing <u>10.4</u>		
Duplicate ID <u>NA</u>	Depth to Water (w/ Tubing in well) <u>7.60</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1600	0.4	0.42	6.8	108	24.85	61461	1.2	0.25				
1603	0.4	0.17	6.8	96	24.32	62006	0.3	0.5				
1606	0.4	0.13	6.8	85	24.09	62089	0.2	0.75				
1609	0.4	0.1	6.8	77	23.91	62121	0.1	1				
1612	0.4	0.07	6.8	67	23.56	62241	0.4	1.3				
1615	0.4	0.06	6.8	70	23.55	62155	0.4	1.6				
1618	0.4	0.04	6.6	67	23.48	62190	0.4	1.8				
1621	0.4	0.05	6.8	66	23.48	62154	0.3	2				
1630 stop												

## Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt; 0.33 foot

## SAMPLE PARAMETERS

2 X SVOCs	1 X Dis. Mer.											
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## SAMPLE RATE

0.4	0.4											
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## Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks:       

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Number of Bottles <u>2 X 1LA</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	<u>1 X 250ml poly</u>
Turbidity Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Field Notebook <u>71</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>25502</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>NA</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

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Date Januray 31, 2005\_

Well Name	W1-19	Screen Interval	14 - 19	
Project	CTO 88 Site 1 R7/05	Station Elevation	GND TOC	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No.	1990.098E	Static Water Level (from TOC) / Time	4.76/1214 4.75/1215 4.77/1216	
Well Location	Site 1	Average Water Level (from TOC)	4.76	
Sample Date	February 1, 2005	Reference Point	TOC	PID Readings (background) 0
Sampling Personnel	Ogle	Reference Elevation		PID Reading (TOC) 0
	Ramos	Static Elevation		Notes
		Well Depth MEAS 21.20	RPTD	Feet of Water
Sample ID	86-S1-066	Depth of Bottom of Tubing	16.5	
Duplicate ID	NA	Depth to Water (w/ Tubing in well)	4.77	

[illegible]

## Native:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be  $\leq 35$  foot

### SAMPLE PARAMETERS

2 X SVOCs	1 X Dis. Mer.						
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**SAMPLE RATE**

0.4	0.4					
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**Notes**

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: \_\_\_\_\_

## FIELD EQUIPMENT

pH Meter	Hydrolab	Serial Number	3656	Number of Bottles	2 X 1LA
Temperature Meter	Hydrolab	Serial Number	3656		1 X 250ml poly
Turbidity Meter	Hydrolab	Serial Number	3656		
Spec. Elec. Cond.	Hydrolab	Serial Number	3656	Field Notebook	C?
ORP Meter	Hydrolab	Serial Number	3656		
D.O. Meter	Hydrolab	Serial Number	3656	Sample Method	Low Flow
Interface Probe	Solinst	Serial Number	25582		
PID/OVA	Mini-Rae	Serial Number	00320		
Pump	Geo-Pump	Serial Number	BA0041		
Filter Apparatus	NA			Discharge Water Contaminated	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Discharge Water Containerized	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
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## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date: January 31, 2005

Well Name	W1-22	Screen Interval	NA	
Project	CTO 86 Site 1 R705	Station Elevation	GND	TOC
Project No.	1990.089E	Static Water Level (from TOC) / Time	3.45/1237	3.45/1238 3.45/1239
Well Location	Site 1	Average Water Level (from TOC)	3.45	
Sample Date	February 2, 2005	Reference Point	TOC	PID Readings (background) 0
Sampling Personnel	Ogle	Reference Elevation		PID Reading (TOC) 0
	Ramco	Static Elevation		Notes
		Well Depth MEAS	6.68	RPTD
Sample ID	86-S1-091	Depth of Bottom of Tubing	6	Feet of Water
Duplicate ID	NA	Depth to Water (w/ Tubing in well)	3.45	

## PURGING

[illegible]

Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be  $\leq 0.33$  foot

### SAMPLE PARAMETERS

2 X SVOCs	1 X Dis. Mer.						
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**SAMPLE RATE**

0.4	0.4					
-----	-----	--	--	--	--	--

## Notre

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks

## FIELD EQUIPMENT

pH Meter	Hydrolab	Serial Number	3656	Number of Bottles	2 X 11A
Temperature Meter	Hydrolab	Serial Number	3656		1 X 250ml poly
Turbidity Meter	Hydrolab	Serial Number	3656		
Spec. Elec. Cond. Meter	Hydrolab	Serial Number	3656	Field Notebook	67
ORP Meter	Hydrolab	Serial Number	3656		
D.O. Meter	Hydrolab	Serial Number	3656	Sample Method	Low Flow
Interface Probe	Solinst	Serial Number	25582		
PI/DGVA	Mini-Rae	Serial Number	00320		
Pump	Geo-Pump	Serial Number	BA0041		
Filter Apparatus	NA			Discharge Water Contaminated	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Discharge Water Containerized ☒ Yes ☐ No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date January 31, 2005

Well Name	W1-23	Screen Interval	NA
Project	CTO 88 Site 1 R7/05	Station Elevation	GND TOC
Project No.	1990 080E	Static Water Level (from TOC) / Time	.561/1227 .561/1228 .560/1228
Well Location	Site 1	Average Water Level (from TOC)	.561
Sample Date	February 1, 2005	Reference Point	TOC
Sampling Personnel	Ogle	Reference Elevation	TOC
	Ramos	Static Elevation	
		Well Depth MEAS	6.00 RPTD
Sample ID	86-S1-087	Depth of Bottom of Tubing	8.0
Duplicate ID	NA	Depth to Water (w/ Tubing in well)	5.61
		Immiscible Phases Present	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		PID Readings (background)	0
		PID Reading (TOC)	0
		Notes	
		Feet of Water	

[illegible]

Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be  $\leq 0.33$  foot

### SAMPLE PARAMETERS

SAMPLE PARAMETERS							
3 X SVOCs	1 X Dis. Mer.						

**SAMPLE RATE**

0.4	0.4						
-----	-----	--	--	--	--	--	--

## Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks:

## FIELD EQUIPMENT

pH Meter \_\_\_\_\_ Hydrolab \_\_\_\_\_ Serial Number \_\_\_\_\_ 3656 \_\_\_\_\_ Number of Bottles \_\_\_\_\_ 3 X 1LA \_\_\_\_\_  
 Temperature Meter \_\_\_\_\_ Hydrolab \_\_\_\_\_ Serial Number \_\_\_\_\_ 3656 \_\_\_\_\_ \_\_\_\_\_ 1 X 250ml poly \_\_\_\_\_  
 Turbidity Meter \_\_\_\_\_ Hydrolab \_\_\_\_\_ Serial Number \_\_\_\_\_ 3656 \_\_\_\_\_ \_\_\_\_\_  
 Spec. Elec. Cond. Meter \_\_\_\_\_ Hydrolab \_\_\_\_\_ Serial Number \_\_\_\_\_ 3656 \_\_\_\_\_ Field Notebook \_\_\_\_\_ 68 \_\_\_\_\_  
 ORP Meter \_\_\_\_\_ Hydrolab \_\_\_\_\_ Serial Number \_\_\_\_\_ 3656 \_\_\_\_\_ \_\_\_\_\_  
 D.O. Meter \_\_\_\_\_ Hydrolab \_\_\_\_\_ Serial Number \_\_\_\_\_ 3656 \_\_\_\_\_ Sample Method \_\_\_\_\_ Low Flow \_\_\_\_\_  
 Interface Probe \_\_\_\_\_ Solinst \_\_\_\_\_ Serial Number \_\_\_\_\_ 25582 \_\_\_\_\_ \_\_\_\_\_  
 PID/OVA \_\_\_\_\_ Mini-Rae \_\_\_\_\_ Serial Number \_\_\_\_\_ 00320 \_\_\_\_\_ \_\_\_\_\_  
 Pump \_\_\_\_\_ Geo-Pump \_\_\_\_\_ Serial Number \_\_\_\_\_ BA0041 \_\_\_\_\_ \_\_\_\_\_  
 Filter Apparatus \_\_\_\_\_ NA \_\_\_\_\_ \_\_\_\_\_  
 Discharge Water Containerized ☒ Yes ☐ No

Discharge Water Containerized ☒ Yes ☐ No



TETRA TECH

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date January 31, 2006

Well Name <u>W1-24</u>	Screen Interval <u>8 - 16</u>	Station Elevation <u>GND</u> TOC	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86 Site 1 R706</u>	Static Water Level (from TOC) / Time <u>6.96/1251</u>	<u>6.98/1252</u>	<u>6.99/1253</u>
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>6.98</u>		
Well Location <u>Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>	
Sample Date <u>February 2, 2005</u>	Reference Elevation	PID Reading (TOC) <u>0</u>	
Sampling Personnel <u>Ogle</u>	Static Elevation	Notes	
<u>Ramos</u>	Well Depth MEAS <u>20.28</u> RPTD	Feet of Water	
Sample ID <u>86-S1-094</u>	Depth of Bottom of Tubing <u>11</u>		
Duplicate ID <u>NA</u>	Depth to Water (w/ Tubing in well) <u>6.98</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (umhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1515	0.4	0.21	7	84	24.08	50279	1.4	0.25				
1518	0.4	0.11	7	85	24.19	49792	1.4	0.5				
1521	0.4	0.08	7	73	24.24	49489	1.3	0.75				
1524	0.4	0.08	8.9	64	24.65	49590	1.3	1				
1527	0.4	0.07	6.9	61	24.8	49856	0.4	1.3				
1530	0.4	0.07	6.9	60	24.74	49771	0.4	1.6				
1533	0.4	0.06	6.9	55	24.67	49680	0.4	1.8				
1536	0.4	0.06	6.9	57	24.69	49663	0.3	2				
1539	0.4	0.08	6.9	58	24.7	40692	0.3	2.25				
1545 stop												

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt; 10-30 feet

## SAMPLE PARAMETERS

2 X SVOCs	1 X Dis. Mer.											
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## SAMPLE RATE

0.4	0.4											
-----	-----	--	--	--	--	--	--	--	--	--	--	--

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: \_\_\_\_\_

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Number of Bottles <u>2 X 1 L</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	<u>1 X 250ml poly</u>
Turbidity Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Field Notebook <u>71</u>
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Sample Method <u>Low Flow</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
Interface Probe <u>Solinst</u>	Serial Number <u>25582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>NA</u>		Discharge Water Contaminized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

**MARCH 2005**



TETRA TECH P.O. BOX 100

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 3/7/05

Well Name <u>W1-1R</u>	Screen Interval <u>14.3-24.3</u>	
Project <u>CTO 86-Site 1, R005</u>	Static Elevation <u>GND</u> TOC <u></u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <u>1890.088E</u>	Static Water Level (from TOC) / Time <u>7:16 / 0704</u> <u>7:21 / 0705</u> <u>7:21 / 0706</u>	
Well Location <u>Moffett, Site 1</u>	Average Water Level (from TOC) <u>7.21</u>	
Sample Date <u>3/7/05</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>B 100</u>
Sampling Personnel <u>D. HARRISON</u>	Reference Elevation <u></u>	PID Reading (TOC) <u>0 ppb</u>
<u>M.RAMOS</u>	Static Elevation <u></u>	Notes <u></u>
	Well Depth MEAS <u>27.46</u> RPTD <u></u>	Feet of Water <u></u>
Sample ID <u>86-S1-096</u>	Depth of Bottom of Tubing <u>19.3</u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>7.21</u>	

## PURGING

[illegible]

### Notations

1. Purgon rate = 0.2 - 0.5 L/minute

2 Drawdown shall be  $\leq 0.35$  foot.

### SAMPLE PARAMETERS

2XSVOCs	1xD.MERC.						
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**SAMPLE RATE**

.4	.4						
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Notes

1. Sample rate for VOCs analysis = 0.1 - 0.2 U/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good - Needs paint

Remarks: Odor-free / Colorless

## FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#R10797	Number of Bottles	2X1LA
Temperature Meter	HYDROLAB	Serial Number	#R10797		1X250mLP
Turbidity Meter	HYDROLAB	Serial Number	#R10797		
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#R10797		
ORP Meter	HYDROLAB	Serial Number	#R10797	Field Notebook	pg. 74
D.O. Meter	HYDROLAB	Serial Number	#R10797		
Interface Probe	SOLINST	Serial Number	#25582	Sample Method	Low Flow
PID/OVA	MINI-RAE	Serial Number	#00320		
Pump	GEO-PUMP	Serial Number	BA0041		
Filter Apparatus	GEO: 45 MICRON			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH PAVING

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3/7/05Well Name W1-5Project CTC 86-Site 1, R3/05Project No. 1990.080EWell Location Moffett Site 1Sample Date 3/8/05Sampling Personnel O. HARRISONM. RAMOSScreen Interval 14.5-19.5Station Elevation GND TOCStatic Water Level (from TOC) / Time 4.80/0947 4.80/0947 4.80/0948Average Water Level (from TOC) 4.80Reference Point TOC

Reference Elevation

Static Elevation

Well Depth MEAS 21.25 RPTDDepth of Bottom of Tubing 17Depth to Water (w/ Tubing in Well) 4.80Immiscible Phases Present ☐ Yes ☒ NoPID Readings (background) 0 ppmPID Reading (TOC) 0 ppm

Notes

Feet of Water

Sample ID 86-S1-103Duplicate ID 86-S1-104

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0938	.4	2.40	7.3	383	24.4	12-16	9.0	.1			4.82	
0953	.4	1.62	7.3	351	23.6	4390	6.2	.3			4.84	
0956	.4	0.23	7.3	333	22.1	8710	2.7	.5			4.85	
0959	.4	0.18	7.3	294	22.5	10237	2.4	.7			4.86	
1002	.4	0.13	7.3	228	22.7	10105	2.0	.7			4.87	
1005	.4	0.11	7.3	211	23.0	10431	2.0	1.1			4.88	
1007	Collect	Sample										
1015	Collect	Field Duplicate										

## Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.35 foot

## SAMPLE PARAMETERS

SVOCs                      D.MERC.                     

## SAMPLE RATE

.4 .4

## Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks:

## FIELD EQUIPMENT

pH Meter HYDROLABSerial Number #R10797Number of Bottles 4x1.1ATemperature Meter HYDROLABSerial Number #R107972x250mL PTurbidity Meter HYDROLABSerial Number #R10797Spec. Elec. Cond. Meter HYDROLABSerial Number #R10797ORP Meter HYDROLABSerial Number #R10797D.O. Meter HYDROLABSerial Number #R10797Interface Probe SOLINSTSerial Number #25582PID/OVA MINI-BAESerial Number #00320Pump GEO-PUMPSerial Number BA0041Filter Apparatus GEO-45 MICRONField Notebook Pgs 78 + 79Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No



TETRA TECH P/Ltd

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 3/7/05

Well Name <u>W1-6</u>	Screen Interval <u>13-18</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 88-Site 1, R205</u>	Station Water Level (from TOC) / Time <u>4.88/0951</u> <u>4.88/0952</u> <u>4.88/0952</u>	Average Water Level (from TOC) <u>4.88</u>	
Project No. <u>1990.0986</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0ppm</u>	
Well Location <u>Moffett, Site 1</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>0ppm</u>	
Sample Date <u>5/8/05</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
Sampling Personnel <u>D. HARRISON</u>	Well Depth MEAS <u>22.70</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
<u>M. RAMOS</u>	Depth of Bottom of Tubing <u>15.5</u>		
Sample ID <u>88-S1-105</u>	Depth to Water (w/ Tubing in Well) <u>4.88</u>		
Duplicate ID <u>n/a</u>			

## PURGING

[illegible]

Molec

- 1 Purge rate = 0.2 - 0.5 U/minute
- 2 Drawdown shall be  $\leq 0.33$  feet

### SAMPLE PARAMETERS

SVOC's	D.MERC						
SAMPLE RATE							
0.4 L/min	0.4 L/min						

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: Slight green / Slight N2S odor

### FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#R10797	Number of Bottles	2x1LA
Temperature Meter	HYDROLAB	Serial Number	#R10797		1x250mLP
Turbidity Meter	HYDROLAB	Serial Number	#R10797		
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#R10797		
ORP Meter	HYDROLAB	Serial Number	#R10797	Field Notebook	Pg - 79
D.O. Meter	HYDROLAB	Serial Number	#R10797		
Interface Probe	SOLINST	Serial Number	#25582	Sample Method	Low Flow
PID/OVA	MINI-RAE	Serial Number	#00320		
Pump	GEQ-PUMP	Serial Number	BA0041		
Filter Apparatus	GEO.-45 MICRON			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 3/7/05

Well Name <u>W1-12R</u>	Screen Interval <u>15-25</u>	Station Elevation <u>GND</u> TCC	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 85-S1a 1, RB05</u>	Static Water Level (from TCC) / Time <u>2.02/0938</u>	<u>2.02/0739</u>	<u>2.02/0840</u>
Project No. <u>1890.085E</u>	Average Water Level (from TCC) <u>2.02</u>		
Well Location <u>Moffatt- Site 1</u>	Reference Point <u>TCC</u>	PID Readings (background) <u>Opp--</u>	
Sample Date <u>3/7/05</u>	Reference Elevation	PID Reading (TCC) <u>Opp--</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation	Notes	
<u>M. RAMOS</u>	Well Depth MEAS	RPTD	Feet of Water
Sample ID <u>85-S1-101</u>	Depth of Bottom of Tubing <u>20</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>2.02</u>		

## PURGING

[illegible]

## Notes

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be  $\leq 0.33$  foot

### SAMPLE PARAMETERS

SVOCs	D.MERC						
SAMPLE RATE	4 L/min						

Notes

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: *Good*

Remarks: Green/turbid water - slight H<sub>2</sub>S odor

## FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#R10797	Number of Bottles	2X11A
Temperature Meter	HYOROLAB	Serial Number	#R10797		1x250mLP
Turbidity Meter	HYDROLAB	Serial Number	#R10797		
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#R10797		
CRP Meter	HYDROLAB	Serial Number	#R10797	Field Notebook	pgs 76 + 77
D.O. Meter	HYDROLAB	Serial Number	#R10797		
Interface Probe	SOLINST	Serial Number	#25562	Sample Method	Low Flow
PID/OVA	MINI-RAE	Serial Number	#00320		
Pump	GEO-PUMP	Serial Number	BA0041		
Filter Apparatus	GEO-45 MICRON			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



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## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 3/7/05

Well Name <u>W1-14</u>	Screen Interval <u>4.1-4.1</u>	Station Elevation <u>GND</u> <u>TOC</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R005</u>	Static Water Level (from TOC) / Time <u>4.60/0730</u> <u>4.60/0931</u> <u>4.60/0932</u>	Average Water Level (from TOC) <u>4.60</u>	
Project No. <u>1990.088E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Off</u>	
Well Location <u>Moffett, Site 1</u>	Reference Elevation _____	PID Reading (TOC) <u>Off</u>	
Sample Date <u>3/7/03</u>	Static Elevation _____	Notes _____	
Sampling Personnel <u>D. HARRISON</u>	Well Depth MEAS <u>17.71</u> <u>RPTD</u>	Feet of Water _____	
<u>M. RAMOS</u>	Depth of Bottom of Tubing <u>8.1</u>		
Sample ID <u>88-S1-100</u>	Depth to Water (w/ Tubing in Well) <u>4.60</u>		
Duplicate ID <u>N/A</u>			

## PURGING

[illegible]

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be  $\leq 0.33$  foot

### SAMPLE PARAMETERS

SVOCs	D.MERC.						
SAMPLE RATE							
- 4 L/min	- 4 L/min						

## Notes

1. Sample rate for VOCs analysis = 0.1 – 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: *Good*

Remarks:

## FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#R10797	Number of Bottles	2X1LA
Temperature Meter	HYDROLAB	Serial Number	#R10797		1X250mLP
Turbidity Meter	HYDROLAB	Serial Number	#R10797		
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#R10797		
ORP Meter	HYDROLAB	Serial Number	#R10797	Field Notebook	Pgs. 15 + 76
D.O. Meter	HYDROLAB	Serial Number	#R10797		
Interface Probe	SOLINST	Serial Number	#25592	Sample Method	Low Flow
PID/OVA	MINI-RAE	Serial Number	#00320		
Pump	GEO-PUMP	Serial Number	BA0041		
Filter Apparatus	GEO-45 MICRON			Discharge Water Contaminized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 3/7/05

Well Name <u>W1-15</u>	Screen Interval <u>4.4-14.4</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Project <u>CTO 86-Site 1, R/05</u>	Station Elevation <u>GND</u> TOC		
Project No. <u>1990.089E</u>	Static Water Level (from TOC) / Time <u>4.82/0400</u>	<u>4.82/0405</u>	<u>4.82/0410</u>
Well Location <u>Moffett-Site 1</u>	Average Water Level (from TOC) <u>4.82</u>		
Sample Date <u>3/7/05</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Opp</u>	
Sampling Personnel <u>D. HARRISON</u>	Reference Elevation	PID Reading (TOC) <u>Opp</u> <u>Opp</u>	
<u>M. RAMOS</u>	Static Elevation	Notes	
	Well Depth MEAS <u>17.75</u> RPTD	Feet of Water	
Sample ID <u>86-S1-097</u>	Depth of Bottom of Tubing <u>9.4</u>		
Duplicate ID <u>collect me/mad</u>	Depth to Water (w/ Tubing in Well) <u>4.82</u>		

## PURGING

[illegible]

### Notes

1. Purge rate = 0.2 - 0.5 L/min/m
2. Drawdown shall be  $\leq 0.33$  feet

**SAMPLE PARAMETER:**

SVOCs	D.MERC.						
SAMPLE RATE							

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: *Good*

Remarks: Green / Turbid water

### FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#R10797	Number of Bottles	6X1LA
Temperature Meter	HYDROLAB	Serial Number	#R10797		3X250mLP
Turbidity Meter	HYDROLAB	Serial Number	#R10797		
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#R10797		
ORP Meter	HYDROLAB	Serial Number	#R10797	Field Notebook	pgs. 74 + 75
D.O. Meter	HYDROLAB	Serial Number	#R10797		
Interface Probe	SOLINST	Serial Number	#25582	Sample Method	Low Flow
PID/OVA	MINI-RAE	Serial Number	#00320		
Pump	GEO-PUMP	Serial Number	BA0041		
Filter Apparatus	GEO.-45 MICRON			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

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Date 3/7/05

Well Name <u>W1-18</u>	Screen Interval <u>5-15.4</u>	
Project <u>CTO 86-Site 1, R6/05</u>	Station Elevation <u>GND</u> TOC	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <u>1990.096F</u>	Static Water Level (from TOC) / Time <u>7-10/0958</u> <u>7-10/0959</u> <u>7-10/1000</u>	
Well Location <u>Moffett-Site 1</u>	Average Water Level (from TOC) <u>7-10</u>	
Sample Date <u>9/8/03</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>off</u>
Sampling Personnel <u>D. HARRISON</u>	Reference Elevation	PID Reading (TOC) <u>off</u>
<u>M RAMOS</u>	Static Elevation	Notes
	Well Depth MEAS <u>19.24</u> RP/D	Feet of Water
Sample ID <u>86-S1-107</u>	Depth of Bottom of Tubing <u>10.4</u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well)	

## PURGING

[illegible]

## Notes

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be  $<0.33$  foot

### SAMPLE PARAMETERS

SVOC's	D.MERC.						
SAMPLE RATE							
4 L/hr	4 L/hr						

## Abstract

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate =  $0.2 \cdot 0.5$  L/minute

Condition of Well: *Good*

Remarks: clear / slight N2S odor

## FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#R10797	Number of Bottles	2X11A
Temperature Meter	HYDROLAB	Serial Number	#R10797		1X250mL P
Turbidity Meter	HYDROLAB	Serial Number	#R10797		
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#R10797		
ORP Meter	HYDROLAB	Serial Number	#R10797	Field Notebook	Pgs. 80+81
D.O. Meter	HYDROLAB	Serial Number	#R10797		
Interface Probe	SOLINST	Serial Number	#25582	Sample Method	Low Flow
PID/OVA	MINI-RAE	Serial Number	#00320		
Pump	GEQ-PUMP	Serial Number	BA0041		
Filter Apparatus	GEQ-.45 MICRON			Discharge Water Contaminized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



## Page 1 of 1

Date 3/7/05

Well Name <u>W1-19</u>	Screen Interval <u>14-19</u>	
Project <u>CTO 86-Site 1, R805</u>	Station Elevation <u>GND</u> TOC	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <u>1990-088E</u>	Static Water Level (from TOC) / Time <u>4.18/0922</u> <u>4.15/0923</u> <u>4.15/0924</u>	
Well Location <u>Moffett, Site 1</u>	Average Water Level (from TOC) <u>4.18</u>	
Sample Date <u>3/7/05</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>opp</u>
Sampling Personnel <u>D. HARRISON</u>	Reference Elevation	PID Reading (TOC) <u>opp</u> <u>opp</u>
<u>M. RAMOS</u>	Static Elevation	Notes
	Well Depth MEAS <u>2420</u> RPTD	Feet of Water
Sample ID <u>86-S1-088</u>	Depth of Bottom of Tubing <u>16.5</u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>4.18</u>	

## PURGING

[illegible]

**Notes**

1 Pump rate = 0.2–0.5 L/minute

2 Drawdown shall be  $\leq 0.53$  feet

### SAMPLE PARAMETERS

SVOCs	D.MERC.						
-------	---------	--	--	--	--	--	--

**SAMPLE RATE**

4 L/m	4 L/m						
-------	-------	--	--	--	--	--	--

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 l/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: Colorless/odorless

## FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#R10797	Number of Bottles	2X1LA
Temperature Meter	HYDROLAB	Serial Number	#R10797		1250mLP
Turbidity Meter	HYDROLAB	Serial Number	#R10797		
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#R10797		
ORP Meter	HYDROLAB	Serial Number	#R10797	Field Notebook	pg. 75
D.O. Meter	HYDROLAB	Serial Number	#R10797		
Interface Probe	SOLINST	Serial Number	#25582	Sample Method	Low Flow
PID/OVA	MINI-RAE	Serial Number	#00320		
Pump	GEO-PUMP	Serial Number	BAD041		
Filter Apparatus	GEO-45 MICRON			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Discharge Water Containerized ☒ Yes ☐ No



## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

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Date 3/7/05

Well Name <u>W1-22</u>	Screen Interval <u>N/A</u>	
Project <u>CTO BS-Site 1, R805</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiicable Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <u>1090.088E</u>	Static Water Level (from TOC) / Time <u>2:55/0942</u> <u>2:55/0943</u> <u>2:55/0944</u>	
Well Location <u>Moffett-Site 1</u>	Average Water Level (from TOC) <u>2.95</u>	
Sample Date <u>3/8/05</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0ppm</u>
Sampling Personnel <u>D. HARRISON</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>0ppm</u>
<u>M RAMOS</u>	Static Elevation <u>          </u>	Notes <u>          </u>
	Well Depth MEAS <u>6.64</u> RPTD <u>          </u>	Feet of Water <u>          </u>
Sample ID <u>86-S1-102</u>	Depth of Bottom of Tubing <u>6.00</u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>2.95</u>	

## PURGING

[illegible]

## Notes

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

2xSVOC's	1xD.MERC.					
<b>SAMPLE RATE</b>						
1/4 L/min	1/4 L/min					

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: *Good*

Remarks. Brown turbidity / slight H<sub>2</sub>S odor

## FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#R10797	Number of Bottles	2x11A
Temperature Meter	HYDROLAB	Serial Number	#R10797		1x250mL P
Turbidity Meter	HYDROLAB	Serial Number	#R10797		
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#R10797		
ORP Meter	HYDROLAB	Serial Number	#R10797	Field Notebook	pg. 78
D.O. Meter	HYDROLAB	Serial Number	#R10797		
Interface Probe	SOLINST	Serial Number	#25582	Sample Method	Low Flow
PID/OVA	MINI-RAE	Serial Number	#00320		
Pump	GEQ-PUMP	Serial Number	BA0041		
Filter Apparatus	GEQ-45 MICRON			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 3/7/05

Well Name <u>W1-23</u>	Screen Interval <u>n/a</u>	Station Elevation <u>GND</u> TOC <u></u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 66-Site 1, R6/G5</u>	Static Water Level (from TOC) / Time <u>5.60/0934</u> <u>5.60/0935</u> <u>5.60/0936</u>		
Project No. <u>1990.0856</u>	Average Water Level (from TOC) <u>5.46</u>		
Well Location <u>Moffett-Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0ppm</u>	
Sample Date <u></u>	Reference Elevation <u></u>	PID Reading (TOC) <u>0ppm</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u></u>	Notes <u></u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>5.75</u> RPTD <u>6.0</u>	Feet of Water <u></u>	
Sample ID <u>96-S1-0999</u>	Depth of Bottom of Tubing <u>11.85</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>4.85</u> <u>5.60</u>		

## PURGING

[illegible]

**Notes:**

1. Purge rate = 0.2 - 0.5 U/minute
2. Drawdown shall be  $\leq 0.33$  foot

### SAMPLE PARAMETERS

SvOCs	D.MERC.					
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**SAMPLE RATE**

--	--	--	--	--	--	--	--

## Notes

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: Brown turbid water - slight H<sub>2</sub>S odor

## FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#R10797	Number of Bottles	2X1LA
Temperature Meter	HYDROLAB	Serial Number	#R10797		1X250mLP
Turbidity Meter	HYDROLAB	Serial Number	#R10797		
Spec Elec. Cond. Meter	HYDROLAB	Serial Number	#R10797		
ORP Meter	HYDROLAB	Serial Number	#R10797	Field Notebook	Pg 76
D.O. Meter	HYDROLAB	Serial Number	#R10797		
Interface Probe	SOLINST	Serial Number	#25582	Sample Method	Low Flow
PID/OVA	MINI-RAE	Serial Number	#00320		
Pump	GEO-PUMP	Serial Number	BA0041		
Filter Apparatus	GEO-45 MICRON			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 3/7/05

Well Name <u>W1-24</u>	Screen Interval <u>6-18</u>	
Project <u>CTO BS-Site 1, RWOS</u>	Station Elevation <u>GND</u> TOC	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <u>1390.0986</u>	Static Water Level (from TOC) / Time <u>6.37/0954</u>	<u>6.38/0955</u> <u>6.37/0956</u>
Well Location <u>Moffett Site 1</u>	Average Water Level (from TOC) <u>6.38</u>	
Sample Date <u>3/5/05</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>
Sampling Personnel <u>D.HARRISON</u>	Reference Elevation _____	PID Reading (TOC) <u>0</u>
<u>M.RAMOS</u>	Static Elevation _____	Notes _____
	Well Depth MEAS <u>20.28</u> RPTD _____	Feet of Water _____
Sample ID <u>86-S1-106</u>	Depth of Bottom of Tubing <u>11</u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>6.38</u>	

## PURGING

[illegible]

**Notes:**

1. Purge rate = 0.2 - 0.5 U/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

SVOC's	D.MERC.						
--------	---------	--	--	--	--	--	--

**SAMPLE RATE**

4 C/m	4 C/m						
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## NOTES

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good  
Remarks: Green turbidity / Slight H<sub>2</sub>S odor

## FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#R10797	Number of Bottles	2x1.1A
Temperature Meter	HYDROLAB	Serial Number	#R10797		2x250ml.P
Turbidity Meter	HYDROLAB	Serial Number	#R10797		
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#R10797		
CRP Meter	HYDROLAB	Serial Number	#R10797	Field Notebook	
D.O. Meter	HYDROLAB	Serial Number	#R10797	Sample Method	Low Flow
Interface Probe	SOLINST	Serial Number	#25582		
PID/OVA	MINI-RAE	Serial Number	#00320		
Pump	GEO-PUMP	Serial Number	BA0041		
Filter Apparatus	GEO-45 MICRON			Discharge Water Contaminized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



**APPENDIX B**

**ANALYTICAL SUMMARY TABLES**  
**AND STATISTICAL EVALUATION TABLES**

## **LIST OF APPENDIX B TABLES**

### **Semiannual Sampling**

Table B-1 April 2005 Validated Analytical Results, Site 1 Landfill

Table B-2 October 2005 Validated Analytical Results, Site 1 Landfill

### **Supplemental Sampling**

Table B-3 January 2005 Analytical Results for Dissolved Mercury and Semivolatile Organic Compounds, Site 1

Table B-4 March 2005 Analytical Results for Dissolved Mercury and Semivolatile Organic Compounds, Site 1

### **Statistical Evaluation**

Table B-5 Statistical Evaluation Summary - Dissolved Metals

Table B-6 Statistical Evaluation Summary - Pesticides

## **SEMIANNUAL SAMPLING**

TABLE B-1

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
APRIL 2005 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL  
FORMER NAS MOFFETT FIELD

MP	06-S1-106 W1-1R 4/11/05	06-S1-109 W1-15 4/11/05	06-S1-110 W1-19 4/11/05	06-S1-112 W1-14 4/11/05	06-S1-113 W1-12R 4/12/05	06-S1-114 W1-12R (DUP) 4/12/05	06-S1-115 W1-22 <sup>a</sup> 4/12/05	06-S1-116 W1-5 4/12/05	06-S1-117 W1-8 4/12/05	06-S1-118 W1-8 (DUP) 4/12/05	06-S1-119 W1-21 4/13/05	06-S1-120 W1-16 4/13/05
<b>Dissolved Metals (<math>\mu</math> g/L)</b>	<b>EPA Method 8208</b>											
Arsenic	0.834 J	4.61 J	2.2 J	4.54 J	1.55 J	1.63 J	2.76 J	1.05 J	2.09 J	1.77 J	6.35 J	5.43 J
Barium	733	145 J	83.8	164	743	73.4 J	206	507	130	130 J	218	241
Cobalt	13.5	1.91 J	9.93	6.01	4.67	6.37	4.33	1.28	2.74	2.4 J	6.29	4.99
Copper	0.602 J	0.205 J	0.814 J	0.225 J	0.528 J	0.573 J	0.831 J	0.142 J	0.329 J	0.434 J	0.243 J	0.214 J
<b>VOCs (<math>\mu</math> g/L)</b>	<b>EPA Method 8208B</b>											
m,p-Xylene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
<b>Pesticides (<math>\mu</math> g/L)</b>	<b>EPA Method 8081A</b>											
beta-BHC	0.047 U	0.048 U	0.047 U	0.047 U	0.053 U	0.047 U	0.047 U	0.047 U	0.048 U	0.047 U	0.048 U	0.048 U
Heptachlor	0.047 U	0.048 U	0.047 U	0.047 U	0.053 U	0.047 U	0.047 U	L2	0.048 U	0.047 U	0.048 U	0.048 U
<b>SVOCs (<math>\mu</math> g/L)</b>	<b>EPA Method 8270C</b>											
2,4,6-Trichlorophenol	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.7 U	9.4 U	9.5 U	9.5 U	9.4 U	9.4 U	9.6 U
2-Methylphenol	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.7 U	9.4 U	9.5 U	9.5 U	9.4 U	9.4 U	9.6 U

**Notes**

Shading indicates concentration above the calculated concentration limit.

<sup>a</sup> - Well W1-22 is a collection trench well and not representative of groundwater at Site 1**Abbreviations and Acronyms** $\mu$ g/L - micrograms per liter

BHC - benzene hexachloride

DUP - duplicate sample

EPA - United States Environmental Protection Agency

J - estimated value

MP - monitoring parameter

NAS - Naval Air Station

SVOC - semivolatile organic compound

U - analyte not detected above project reporting limit

VOC - volatile organic compound

TABLE B-2

Page 1 of 1

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
OCTOBER 2005 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL  
FORMER NAS MOFFETT FIELD

MP	86-S1-124 W1-1R 10/4/05	86-S1-125 W1-15 10/4/05	86-S1-126 W1-19 10/6/05	86-S1-128 W1-14 10/6/05	86-S1-129 W1-12R 10/6/05	86-S1-130 W1-22 <sup>a</sup> 10/6/05	86-S1-131 W1-5 10/6/05	86-S1-132 W1-5 (DUP) 10/6/05	86-S1-133 W1-8 10/6/05	86-S1-134 W1-8 (DUP) 10/6/05	86-S1-135 W1-24 10/6/05	86-S1-136 W1-16 10/6/05
<b>Dissolved Metals (<math>\mu</math> g/L)</b>	<b>EPA Method 200.8</b>											
Arsenic	1.61	4.47	2.97	5.28	2.53	1.93	0.95	1.95 J	3.86	4.33 J	7.25	7.72
Barium	107	176	99.9	139	72	1260	576	536 J	130	130 J	388	438
Cobalt	7.69 J	3.32 J	9.69 J	8.34 J	5.25 J	0.36 J	1.73 J	2.99 J	2.27 J	2.28 J	2.87 J	7.28 J
Copper	2.64 J	0.1 J	0.494 J	0.075 J	0.205 J	0.135 J	0.031 J	0.06 J	0.099 J	0.093 J	0.14 J	0.125 J
<b>VOCs (<math>\mu</math> g/L)</b>	<b>EPA Method 8260B</b>											
m,p-Xylene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
<b>Pesticides (<math>\mu</math> g/L)</b>	<b>EPA Method 8061A</b>											
Isoa-BHC	0.048 U	0.048 U	0.047 U	0.047 U	0.049 U	0.25	0.05 U	0.048 U	0.048 U	0.047 U	0.05 U	0.049 U
Heptachlor	0.048 U	0.048 U	0.047 U	0.047 U	0.02 J	0.049 U	0.05 U	0.048 U	0.048 U	0.047 U	0.05 U	0.049 U
<b>SVOCs (<math>\mu</math> g/L)</b>	<b>EPA Method 8270C</b>											
2,4,6-Trichlorophenol	9.4 U	9.4 U	10 U	9.5 U	9.4 U	10 U	9.4 U	10 U	9.4 U	9.7 U	9.4 U	9.5 U
2-Methylphenol	9.4 U	9.4 U	10 U	9.5 U	9.4 U	10 U	9.4 U	10 U	9.4 U	9.7 U	9.4 U	9.5 U

**Notes**

Shading indicates concentration above the calculated concentration limit.

\* - Well W1-22 is a collection trench well and not representative of groundwater at Site 1

**Abbreviations and Acronyms** $\mu$ g/L - micrograms per liter

BHC - benzene hexachloride

DUP - duplicate sample

EPA - United States Environmental Protection Agency

J - estimated value

MP - monitoring parameter

NAS - Naval Air Station

SVOC - semivolatile organic compound

U - analyte not detected above project reporting limit

VOC - volatile organic compound

## **SUPPLEMENTAL SAMPLING**

TABLE B-3

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
JANUARY 2005 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD

COC	86-S1-084 WI-1R 1/3/05	86-S1-085 WI-15 2/1/05	86-S1-086 WI-19 2/1/05	86-S1-088 WI-14 2/1/05	86-S1-089 WI-12R 2/1/05	86-S1-090W WI-12R (DUP) 2/1/05	86-S1-091 WI-22 <sup>1</sup> 2/2/05	86-S1-092 WI-5 2/2/05	86-S1-093 WI-8 2/2/05	86-S1-094 WI-21 2/2/05	86-S1-095 WI-16 2/2/05
<i>Dissolved Metals (µg/L)</i>	<i>EPA Method 7470A</i>										
Merccury	8 U	8 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
<i>SVOCs (µg/L)</i>	<i>EPA Method 8270C</i>										
1,1'-Biphenyl	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,2'-Oxybis(1-chloropropane)	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,6-Trichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dimethylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dinitrophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2,4-Dinitrotoluene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2,6-Dinitrotoluene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2-Chloronaphthalene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Chlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Methylnaphthalene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Nitroaniline	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2-Nitrophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3,3'-Dichlorobenzidine	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3/4-Methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3-Nitroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4,6-Dinitro-2-methylphenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
4-Bromophenyl-phenylether	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
4-Chloro-3-methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chloroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chlorophenyl-phenylether	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Nitroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Nitrophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Acenaphthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Acenaphthylene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Acetophenone	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Azaxine	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U

TABLE B-3

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
JANUARY 2005 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD

COC	86-SI-084 WI-1R 1/3/05	86-SI-085 WI-15 2/1/05	86-SI-086 WI-19 2/1/05	86-SI-088 WI-14 2/1/05	86-SI-089 WI-12R 2/1/05	86-SI-090W WI-12R (DUP) 2/1/05	86-SI-091 WI-22 <sup>1</sup> 2/2/05	86-SI-092 WI-5 2/2/05	86-SI-093 WI-8 2/2/05	86-SI-091 WI-21 2/2/05	86-SI-095 WI-16 2/2/05
Benzaldehyde	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benz(a)anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benz(a)pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzof(b)fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzof(g,h,i)perylene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzof(k)fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Is(2-Chloroethoxy)methane	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Is(2-Chloroethyl)ether	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Is(2-Ethylhexyl)phthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Butylbenzylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Caprolactam	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Carbazole	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Chrysene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenzo(a,h)anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenzofuran	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dichlorophthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Dimethylphthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
di-n-Butylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
di-n-Octylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluorene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachlorobenzene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Hexachlorocyclopentadiene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachloroethane	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Indeno(1,2,3-cd)pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Isophorone	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Nitrobenzene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
n-Nitroso-di-n-propylamine	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
n-Nitrosodiphenylamine	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pentachlorophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Phenanthrene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Phenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U



TABLE B-3

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
JANUARY 2005 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD

**Notes**

\* - Well W1-ZZ is a collection trench well not representative of groundwater at Site 1

**Abbreviations and Acronyms**

µg/L - micrograms per liter

COC - constituent of concern

DUP - duplicate sample

EPA - United States Environmental Protection Agency

NAS - Naval Air Station

SVOC - semivolatile organic compound

U - analyte not detected above project reporting limit

TABLE B-1

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
MARCH 2005 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD**

COC	06-SI-006 WI-1R 3/7/05	06-SI-097 WI-15 3/7/05	06-SI-098 WI-19 3/7/05	06-SI-100 WI-14 3/7/05	06-SI-101 WI-12R 3/7/05	06-SI-102 WI-22 <sup>2</sup> 3/8/05	06-SI-103 WI-5 3/8/05	06-SI-104 WI-5 (DUP) 3/8/05	06-SI-105 WI-8 3/8/05	06-SI-106 WI-21 3/8/05	06-SI-107 WI-16 3/8/05
<b>Dissolved Metals (<math>\mu</math>g/L)</b>	<b>EPA Method 7470A</b>										
Mercury	4U	4U	4U	4U	4U	4U	4U	4U	4U	4U	4U
<b>SVOCs (<math>\mu</math>g/L)</b>	<b>EPA Method 8270C</b>										
1,1'-Biphenyl	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
2,2'-Oxybis(1-chloropropane)	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
2,4,5-Trichlorophenol	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
2,4,6-Trichlorophenol	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
2,4-Dichlorophenol	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
2,4-Dimethylphenol	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
2,4-Dinitrophenol	19U	19U	19U	19U	19U	19U	19U	19U	19U	19U	19U
2,4-Dinitrotoluene	19U	19U	19U	19U	19U	19U	19U	19U	19U	19U	19U
2,6-Dinitrotoluene	19U	19U	19U	19U	19U	19U	19U	19U	19U	19U	19U
2-Chloronaphthalene	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
2-Chlorophenol	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
2-Methylnaphthalene	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
2-Methylphenol	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
2-Nitroaniline	19U	19U	19U	19U	19U	19U	19U	19U	19U	19U	19U
2-Nitrophenol	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
3,3'-Dichlorobenzidine	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
3/4-Methylphenol	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
3-Nitroaniline	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
4,6-Dinitro-2-methylphenol	19U	19U	19U	19U	19U	19U	19U	19U	19U	19U	19U
4-Bromophenyl-phenylether	19U	19U	19U	19U	19U	19U	19U	19U	19U	19U	19U
4-Chloro-3-methylphenol	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
4-Chloroaniline	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
4-Chlorophenyl-phenylether	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
4-Nitroaniline	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
4-Nitrophenol	19U	19U	19U	19U	19U	19U	19U	19U	19U	19U	19U
Acenaphthene	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
Acenaphthylene	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
Acetophenone	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
Anthracene	9.4U	9.4U	9.4U	9.4U	9.5U	9.7U	9.4U	9.4U	9.4U	9.4U	9.4U
Atrazine	19U	19U	19U	19U	19U	19U	19U	19U	19U	19U	19U

TABLE B-1

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
MARCH 2005 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD**

COC	06-SI-006 W1-1R 3/7/05	06-SI-097 W1-15 3/7/05	06-SI-098 W1-19 3/7/05	06-SI-100 W1-14 3/7/05	06-SI-101 W1-12R 3/7/05	06-SI-102 W1-22 <sup>2</sup> 3/8/05	06-SI-103 W1-5 3/8/05	06-SI-104 W1-5 (DUP) 3/8/05	06-SI-105 W1-8 3/8/05	06-SI-106 W1-21 3/8/05	06-SI-107 W1-16 3/8/05
Benzaldehyde	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benz(a)anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benz(a)pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benz(b)fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benz(g,h,i)perylene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benz(k)fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Chloroethoxy)methane	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Chloroethyl)ether	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Ethylhexyl)phthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Butylbenzylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Caprolactam	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Carbazole	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Chrysene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenzo(a,h)anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenzofuran	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Diethylphthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Dimethylphthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
di-n-Butylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
di-n-Octylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluorene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachlorobenzene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Hexachlorocyclopentadiene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachloroethane	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Indeno(1,2,3-cd)pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Isophorene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Nitrobenzene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
n-Nitroso-di-n-propylamine	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
n-Nitrosodiphenylamine	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pentachlorophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Phenanthrene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Phenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

TABLE B-1

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
MARCH 2005 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD**

**Notes**

\* - Well W1-ZZ is a collection trench well not representative of groundwater at Site 1

**Abbreviations and Acronyms**

µg/L - micrograms per liter

COC - constituent of concern

DUP - duplicate sample

EPA - United States Environmental Protection Agency

NAS - Naval Air Station

SVOC - semivolatile organic compound

U - analyte not detected above project reporting limit

UJ - analyte not detected above the estimated reporting limit

## STATISTICAL EVALUATION

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT**  
**STATISTICAL EVALUATION SUMMARY - DISSOLVED METALS**  
**APRIL 2005 MONITORING SUMMARY**  
**FORMER NAS MOFFETT FIELD**

Date	Sample Type	Well	Gradient	Analyte	Conc. (µg/L)	CCL (µg/L)	Less Than Historical Background	Maximum Historical Background	Track for 2 Out of 3 Exceed.	Comment
04/12/05	REG	W1-5	Upgrad.	Barium	507	40	N/A	N/A	No	Location is a background well
04/12/05	REG	W1-8	Upgrad.	Barium	130	40	N/A	N/A	No	Location is a background well
04/12/05	FD	W1-8	Upgrad.	Barium	130 J	40	N/A	N/A	No	Location is a background well
04/12/05	REG	W1-12R	Upgrad.	Barium	74.3	40	N/A	N/A	No	Location is a background well
04/12/05	FD	W1-12R	Upgrad.	Barium	73.4 J	40	N/A	N/A	No	Location is a background well
04/11/05	REG	W1-14	Downgrad.	Barium	184	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
04/11/05	REG	W1-15	Downgrad.	Barium	145 J	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
04/13/05	REG	W1-16	Downgrad.	Barium	244	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
04/11/05	REG	W1-19	Downgrad.	Barium	83.8	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
04/11/05	REG	W1-1R	Downgrad.	Barium	73.3	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
04/13/05	REG	W1-24	Downgrad.	Barium	218	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT**  
**STATISTICAL EVALUATION SUMMARY - DISSOLVED METALS**  
**OCTOBER 2005 MONITORING SUMMARY**  
**FORMER NAS MOFFETT FIELD**

Date	Sample Type	Well	Gradient	Analyte	Conc. (µg/L)	CCL (µg/L)	Less Than Historical Background	Maximum Historical Background	Track for 2 Out of 3 Exceed.	Comment
10/03/05	REG	W1-5	Upgrad.	Barium	576	40	N/A	N/A	No	Location is a background well
10/06/05	FD	W1-5	Upgrad.	Barium	556 J	40	N/A	N/A	No	Location is a background well
10/03/05	REG	W1-8	Upgrad.	Barium	150	40	N/A	N/A	No	Location is a background well
10/06/05	FD	W1-8	Upgrad.	Barium	150 J	40	N/A	N/A	No	Location is a background well
10/03/05	REG	W1-12R	Upgrad.	Barium	72	40	N/A	N/A	No	Location is a background well
10/06/05	REG	W1-14	Downgrad.	Barium	159	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
10/04/05	REG	W1-15	Downgrad.	Barium	176	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
10/06/05	REG	W1-16	Downgrad.	Barium	458	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
10/06/05	REG	W1-19	Downgrad.	Barium	99.9	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
10/04/05	REG	W1-1R	Downgrad.	Barium	107	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
10/06/05	REG	W1-24	Downgrad.	Barium	368	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background

**Abbreviations and Acronyms**

µg/L - micrograms per liter  
 CCL - calculated concentration limit  
 Conc. - concentration  
 Downgrad. - downgradient

Exceed. - exceedance  
 FD - field duplicate  
 J - estimated value  
 N/A - not applicable

NAS - Naval Air Station  
 Upgrad. - upgradient  
 REG - regular sample

TABLE B-6

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
STATISTICAL EVALUATION SUMMARY - PESTICIDES  
APRIL 2005 MONITORING SUMMARY  
FORMER NAS MOFFETT FIELD**

Date	Sample Type	Well	Gradient	Analyte	Conc. (ug/L)	CCL (ug/L)	Less Than Historical Background	Maximum Historical Background	Track for 2 Out of 3 Exceed.	Comment
4/12/2005	REG	W1-5	Upgrad.	Heptachlor	1.2	0.36	N/A	N/A	No	Location is a background well



TABLE B-6

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
STATISTICAL EVALUATION SUMMARY - PESTICIDES  
OCTOBER 2005 MONITORING SUMMARY  
FORMER NAS MOFFETT FIELD**

Date	Sample Type	Well	Gradient	Analyte	Conc. (µg/L)	CCL (µg/L)	Less Than Historical Background	Maximum Historical Background	Track for 2 Out of 3 Exceed.	Comment
				No exceedances reported.						

***Abbreviations and Acronyms***

µg/L - micrograms per liter

CCL - calculated concentration limit

Conc. - concentration

Upgrad. - upgradient

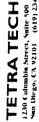
Exceed. - exceedance

N/A - not applicable

NAS - Naval Air Station

REG - regular sample

**APPENDIX C**  
**ANALYTICAL DATA VALIDATION PACKAGES**  
**(Provided on CD only)**



## NUMBER

10315

[illegible]

White - Laboratory; Pink - Laboratory; Pink - Laboratory; Canary - Project File, Manila - Data Management

0016653 - 1N



13235A

Date: 03-03-2005  
EMAX Batch No.: 058011

Attn: Lynn Jefferson

Tetra Tech EW, Inc.  
1940 F. Beebe Ave, Suite 200  
Santa Ana CA 92705

Subject: Laboratory Report  
Project: MFA, Site 1, CTO 86

.....

Enclosed is the Laboratory report for samples received on 02/02/05. The data reported include:

Sample ID	Control %	Gr: Date	Matrix	Analysis
86-ST-084	9011-01	01/31/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GC/MS
86-ST-085	9011-02	02/01/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GC/MS
09-ST-905W3	9011-03K	02/01/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GC/MS
86-ST-085H3D	9011-03S	02/01/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GC/MS

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

*K. L. Pang*

KIM P. PANG, Ph.D.,  
Laboratory Director

## CASE NARRATIVE

CLIENT: TETRA TECH FW, INC.  
PROJECT: MFA, SITE 1, CTO 86  
SDG: 05B011

### SW 3520C/8270C SEMI VOLATILE ORGANICS BY GC/MS

Two (2) water samples were received on 02/02/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

1. **Holding Time**

Analytical holding time was met.

2. **Tuning and Calibration**

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. **Method Blank**

Method blank was free of contamination at the reporting limit.

4. **Surrogate Recovery**

Recoveries were within QC limit.

5. **Lab Control Sample/Lab Control Sample Duplicate**

Recoveries were within QC limit.

6. **Matrix Spike/Matrix Spike Duplicate**

Sample B011-02 was spiked. All recoveries were within QC limit except:

Sample	Compound	%Rec.	QC Limit
B011-02S	2-Chlorophenol	38	41-125

But recovery in MS met QC intent. RPD was 1% higher than QC limit.

7. **Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MOL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
4-DIMETHYLPHENOL	ND	9.4	4.7
2-BINITROPHENOL	ND	19	9.4
4-DINITROTOLUENE	NC	19	9.4
2,6-DINITROTOLUENE	ND	19	9.4
CHLORODIPHENYLENE	ND	9.4	4.7
CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
3-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	9.4
2-NITROPHENOL	HO	9.4	4.7
3,5-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-FLUORO-3-METHYLPHENOL	ND	9.4	4.7
4-CLOMOANILINE	ND	9.4	4.7
4-CHLOROPHENYL PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	9.4
ACETANILIDE	ND	9.4	4.7
ACEPHENITHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
PENTACHLORONAPHTHENE	ND	9.4	4.7
EENZO(4)PYRENE	NI	9.4	4.7
BENZO(b)FLUORANTHENE	NC	9.4	4.7
BENZO(k)FLUORANTHENE	ND	9.4	4.7
BENZO(g,h,i)PERYLENE	ND	9.4	4.7
1,2,4,7-TETRABROMOXY METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)SULFATE	ND	19	9.4
BUTYLENEDIAMINOTRISPHOSPHATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DIOX-3-BUTYLPHthalate	ND	9.4	4.7
DIOX-8-OCTYLPHthalate	ND	9.4	4.7
OXYBENZOCALANTHRAcene	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
DIBUTYLPHthalate	NC	19	9.4
DIMETHYLPHthalate	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLOURENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	19	9.4
HEPTACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEPTACHLOROCYCLOPENTADIENE	ND	9.4	4.7
INDENO(1,2,3-cd)PYRENE	ND	9.4	4.7
ISOPHORBONE	ND	9.4	4.7
N,N-DIETHYL-DI-N-PROPIONURACINE	ND	9.4	4.7
N-NITROSODIETHYLAMINE	ND	9.4	4.7
N-NITROSODIMETHYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
NONACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PIRENE	ND	9.4	4.7
2-Ethylhexyl	ND	9.4	4.7
HEPTACHLOROPYRENE	ND	9.4	4.7
NAPHTHALENE	ND	19	9.4
DECAHALIC HYDROCARBON	ND	9.4	4.7
ZINC SULFIDE	ND	9.4	4.7
SILICA GEL	ND	9.4	4.7

[illegible]

R) = reporting Unit  
 U) = Carrot pc separated from 3-Methyl group  
 G) = Carrot pc separated from 0-Methyl group



## CASE NARRATIVE

CLIENT: TETRA TECH FW, INC.

PROJECT: MFA, SITE 1, CTO #6

SDG: 050011

### METHOD 7470A DISSOLVED MERCURY BY COLD VAPOR

Two (2) water samples were received on 02/02/05 for Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample B011-02 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

Sample B011-02 was spiked. Recoveries were out of QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

Samples were reported from DF 40 due to matrix interference.



MEASURED MERCURY BY COLORIMETRY

1. *Содержание* — 16744 руб. 40, НДС —  
 2. *Содержание* — 16744 руб. 40, НДС —  
 3. *Содержание* — 16744 руб. 40, НДС —

Matrix :	WATER
Instrument ID :	T1047

[illegible]

COPY

LDC Report# 13235A2

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86  
**Collection Date:** January 31 through February 1, 2005  
**LDC Report Date:** March 14, 2005  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05B011

**Sample Identification**

86-S1-084\*\*  
86-S1-085  
86-S1-085MS  
86-S1-085MSD

\*\*Indicates sample underwent EPA Level IV review

✓  
-A  
3/3/05

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-S1-095MS/MSD (86-S1-085)	2-Chlorophenol	-	38 (41-125)	38 ( $\leq 30$ )	J (all detects) UJ (all non-detects)	A

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

## XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

#### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

#### **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**

**Semivolatiles - Data Qualification Summary - SDG 05B011**

SDG	Sample	Compound	Flag	A or P	Reason
05B011	86-S1-085	2-Chlorophenol	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)(RPD)

**Moffett Airfield, Site 1, CTO 86**

**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05B011**

No Sample Data Qualified in this SDG

COPY

LDC Report# 13235A4

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86  
**Collection Date:** January 31 through February 1, 2005  
**LDC Report Date:** March 10, 2005  
**Matrix:** Water  
**Parameters:** Dissolved Mercury  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 05B011

**Sample Identification**

86-S1-084\*\*  
86-S1-085  
86-S1-085MS  
86-S1-085MSD

\*\*Indicates sample underwent EPA Level IV review

1/2/05



## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis is not required by the method.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
66-S1-09SMS/MSD (All samples in SDG 05B011)	Dissolved mercury	130 (75-125)	158 (70-125)	-	J (all detects)	A

## VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

## **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

## **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

## **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

## **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**

**Dissolved Mercury - Data Qualification Summary - SDG 05B011**

SDG	Sample	Analyte	Flag	A or P	Reason
05B011	66-S1-084** 66-S1-085	Dissolved mercury	J (all detects)	A	Matrix spike/Matrix spike duplicates (%R)

**Moffett Airfield, Site 1, CTO 86**

**Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 05B011**

No Sample Data Qualified in this SDG



1230 Columbia Street, Suite 400  
San Diego, CA 92101 (619) 234-8696

## NUMBER

20314

[illegible]

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0016579-12

132350 EMAX LABORATORIES, INC.

**EMAX**  
LABORATORIES, INC.  
1535 W. 20th Street  
Torrance, CA 90501  
Tel: (310) 516-8885  
Fax: (310) 516-0606

Date: 02-21-2005  
Lab# Dutch 601-056043

Attn: Lynn Jefferson

Tetra Tech Pty, Inc.  
1940 E. Deane Ave, Suite 200  
Brea, CA 92703

Subject: Laboratory Report  
Project: MFA, Site 5, DTH 86

Enclosed is the laboratory report for samples received on 02/02/05. The data reported include:

Sample ID	Control	Rel. Conc.	Matrix	Analysis
05-01-085	0044-01	02/02/05	WATER	MERCURY DISSOLVED
05-01-086	0044-02	02/02/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS
05-01-087	0044-03	02/02/05	WATER	MERCURY DISSOLVED
05-01-088	0044-04	02/02/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS
05-01-089	0044-05	02/02/05	WATER	MERCURY DISSOLVED
05-01-090	0044-06	02/02/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS

The results are summarized on the following pages:

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

*Karen Deery*

Karen Y. Deery, Ph.D.  
Laboratory Director

1000

CASE NARRATIVE

CLIENT: TETRA TECH FW, INC.  
PROJECT: MFA, SITE 1, CTO 86  
SDG: 05B044

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Four (4) water samples were received on 02/01/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analytical holding time was met

2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met

3. Method Blank

Method blank was free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed GC procedures. All criteria were met.











## CASE NARRATIVE

CLIENT: TETRA TECH FW, INC.  
PROJECT: MFA, SITE 1, CTO 86  
SDG: 05B044

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Four (4) water samples were received on 02/06/05 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

1. **Holding Time**  
Analysis met holding time criteria.
2. **Method Blank**  
Method blank was free of contamination at the reporting limit.
3. **Lab Control/ Sample/Lab Control Sample Duplicate**  
Lab control results were within QC limit.
4. **Serial Dilution / Post-Analytical Spike**  
Sample BU25-02 from another SDG was analyzed for serial dilution and post-analytical spike. All QC requirements were met.
5. **Duplicate**  
Duplicate sample was not designated in this SDG.
6. **Matrix Spike/Matrix Spike Duplicate**  
No MS/MSD sample was designated in this SDG.
7. **Sample Analysis**  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.



COPY

LDC Report# 13235C2

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86

**Collection Date:** February 1, 2005

**LDC Report Date:** March 10, 2005

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05B044

**Sample Identification**

86-S1-086

86-S1-088

86-S1-089

86-S1-090\*\*

\* \*\* indicates sample underwent EPA Level IV review

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

### **I. Technical Holding Times**

All technical holding time requirements were met.

Cooler temperatures for all samples were reported at 10.4°C upon receipt by the laboratory.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

### **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

### **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

### **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

### **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.



## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

#### **XVI. Field Duplicates**

Samples 86-S1-089 and 86-S1-090\*\* were identified as field duplicates. No semivolatiles were detected in any of the samples.

#### **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**

**Semivolatiles - Data Qualification Summary - SDG 05B044**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**

**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05B044**

No Sample Data Qualified in this SDG

COPY

LDC Report# 13235C4

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86  
**Collection Date:** February 1, 2005  
**LDC Report Date:** March 10, 2005  
**Matrix:** Water  
**Parameters:** Dissolved Mercury  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05B044

**Sample Identification**

86-S1-086  
86-S1-088  
86-S1-089  
86-S1-090\*\*

\*\*Indicates sample underwent EPA Level IV review

18  
3/24/05

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## **IV. ICP Interference Check Sample (ICS) Analysis**

ICP interference check sample analysis is not required by the method.

## **V. Matrix Spike Analysis**

The laboratory has indicated that there were no matrix spike (MS) analyses specified for the samples in this SDG, and therefore matrix spike analyses were not performed for this SDG.

## **VI. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

#### **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

#### **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

#### **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

#### **XIII. Field Duplicates**

Samples 86-S1-089 and 86-S1-090\*\* were identified as field duplicates. No dissolved mercury was detected in any of the samples.

#### **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**

**Dissolved Mercury - Data Qualification Summary - SDG 05B044**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**

**Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 05B044**

No Sample Data Qualified in this SDG





**TETRA TECH**  
1230 Columbia Street, Suite 400  
San Diego, CA 92101 (619) 514-6696

# CHAIN-OF-CUSTODY RECORD

NUMBER

10317

PROJECT NAME STRA-1-1765		PURCHASE ORDER NO 208487356 28		ANALYSES REQUIRED										LABORATORY NAME EMA		Project Information Section Do not submit to Laboratory											
PROJECT LOCATION MORRIS ISLAND, CA		PROJECT NO 0830-0865												LABORATORY ID (FOR LABORATORY)													
SAMPLER NAME PULL CORE		SAMPLER NUMBER 24507613510												05B028													
PROJECT CONTACT LAWYER, TERRY		PROJECT CONTACT PHONE NUMBER 4097788-7584												COMMENTS		LOCATION		DEPTH STATE FMD									
SAMPLE ID		DATE COLLECTED		TIME COLLECTED		NO OF CONTAINERS		LEVEL 3 4		T 1 A P E T												W1-22		-		8	
86-51-091		8-2-05		14:00		3		X		W1-22												W1-5		-		8	
86-51-092		8-2-05		14:00		3		X		W1-22												W1-8		-		8	
86-51-093		8-2-05		15:00		3		X		W1-22												W1-24		-		8	
86-51-094		8-2-05		15:00		3		X		W1-22												W1-16		-		8	
86-51-095		8-2-05		15:00		3		X		W1-22																	
RETURNED BY (Signature)		DATE		TIME		RECEIVED BY (Signature)		COMPANY		LABORATORY INSTRUCTIONS/COMMENTS																	
COMPANY		TIME		DATE		COMPANY		RECEIVED BY (Signature)		COMPANY		NA															
RETURNED BY (Signature)		DATE		TIME		RECEIVED BY (Signature)		COMPANY		NA																	
COMPANY		TIME		DATE		COMPANY		RECEIVED BY (Signature)		COMPANY		NA															
RETURNED BY (Signature)		DATE		TIME		RECEIVED BY (Signature)		COMPANY		SAMPLE CONDITION (FOR RECEIPT FOR LABORATORY)																	
COMPANY		TIME		DATE		COMPANY		RECEIVED BY (Signature)		COMPANY		TEMPERATURE: SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN															
RETURNED BY (Signature)		DATE		TIME		RECEIVED BY (Signature)		COMPANY		COMPANY		COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN															
COMPANY		TIME		DATE		COMPANY		RECEIVED BY (Signature)		COMPANY																	

White - Laboratory; Pink - Laboratory; Green - Project File; Magenta - Data Management

0016574-12



13235B

Date: 02-18-2005  
EMAX Access No.: 9-B026

Client: Lynn Jefferson

Tetra Tech, Inc.,  
1946 E. Burke Ave., Suite 200  
Santa Ana, CA 92705

Subject: Laboratory Report  
Project: MFA, Site 5, 110 06

Enclosed is the Laboratory report for samples received on 02/04/05. The data reported include:

Sample ID	Container	Set Date	Matrix	Analysis
06-01-001	B008-01	02/02/05	WATER	MERCURY DISSOLVER SEMIVOLATILE ORGANICS BY GC/MS
06-01-002	B008-02	02/02/05	WATER	MERCURY DISSOLVER SEMIVOLATILE ORGANICS BY GC/MS
06-01-003	B008-03	02/02/05	WATER	MERCURY DISSOLVER SEMIVOLATILE ORGANICS BY GC/MS
06-01-004	B008-04	02/02/05	WATER	MERCURY DISSOLVER SEMIVOLATILE ORGANICS BY GC/MS
06-01-005	B008-05	02/02/05	WATER	MERCURY DISSOLVER SEMIVOLATILE ORGANICS BY GC/MS

The results are shown on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

*[Signature]*

Karl L. Papp, Ph.D.  
Laboratory Director

# CASE NARRATIVE

CLIENT: TETRA TECH PW, INC.  
PROJECT: MFA, SITE 1, CTO #6  
IDG: 050028

## SW 3520C/8270C SEMI VOLATILE ORGANICS BY GC/MS

Five (5) water samples were received on 02/04/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

### 1. Holding Time

Analytical holding time was met.

### 2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

### 3. Method Blank

Method blank was free of contamination at the reporting limit.

### 4. Surrogate Recovery

Recoveries were within QC limit.

### 5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

### 6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

### 7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.













# CASE NARRATIVE

CLIENT: TETRA TECH PW, INC.  
PROJECT: MFA, SITE 1, CTO 66  
SDG: 05B028

## METHOD 7470A DISSOLVED MERCURY BY GOLD VAPOR

Five (5) water samples were received on 02/04/05 for Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

- Holding Time**  
Analysis met holding time criteria.
- Method Blank**  
Method blank was free of contamination at the reporting limit.
- Lab Control Sample/Lab Control Sample Duplicate**  
Lab control results were within QC limit.
- Serial Dilution /Analytical Spike**  
Sample B029-02 from another SDG was analyzed for serial dilution and analytical spike. QC criteria were met.
- Matrix Spike/Matrix Spike Duplicate**  
No MS/MSD sample was designated in this SDG.
- Sample Analysis**  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.



COPY

LDC Report# 13235B2

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield. Site 1, CTO 86

**Collection Date:** February 2, 2005

**LDC Report Date:** March 10, 2005

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05B028

**Sample Identification**

86-S1-091

86-S1-092

86-S1-093\*\*

86-S1-094

86-S1-095

\*\*Indicates sample underwent EPA Level IV review

7/10/05

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were not within QC limits. Since there were no associated samples, no data were qualified.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 05B028**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05B028**

No Sample Data Qualified in this SDG



COPY

LDC Report# 13235B4

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86

**Collection Date:** February 2, 2005

**LDC Report Date:** March 10, 2005

**Matrix:** Water

**Parameters:** Dissolved Mercury

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05B028

**Sample Identification**

86-S1-091  
86-S1-092  
86-S1-093\*\*  
86-S1-094  
86-S1-095

\*\*Indicates sample underwent EPA Level IV review

✓  
8/3  
7/31/05

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## **IV. ICP Interference Check Sample (ICS) Analysis**

ICP interference check sample analysis is not required by the method.

## **V. Matrix Spike Analysis**

The laboratory has indicated that there were no matrix spike (MS) analyses specified for the samples in this SDG, and therefore matrix spike analyses were not performed for this SDG.

## **VI. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

#### **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

#### **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

#### **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

#### **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

#### **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**

**Dissolved Mercury - Data Qualification Summary - SDG 05B028**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**

**Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 05B028**

No Sample Data Qualified in this SDG

NUMBER 10327

## CHAIN-OF-CUSTODY RECORD

ANALYSES REQUIRED										LABORATORY NAME		Project Information Section Do not submit to Laboratory			
DATE	TIME	LEVEL	DEPTH	TEMP	WIND	WAVE	WAVE	WAVE	WAVE	LABORATORY ID	COMMENTS	LOCATION	DEPTH	START	END
1970	1000	3	1000	1000	1000	1000	1000	1000	1000	05C073		W1-18	1000		
1970	1000	3	1000	1000	1000	1000	1000	1000	1000			W1-15	1000		
1970	1000	3	1000	1000	1000	1000	1000	1000	1000			W1-19	1000		
1970	1000	3	1000	1000	1000	1000	1000	1000	1000			W1-14	1000		
1970	1000	3	1000	1000	1000	1000	1000	1000	1000			W1-12	1000		
1970	1000	3	1000	1000	1000	1000	1000	1000	1000			W1-22	1000		
1970	1000	3	1000	1000	1000	1000	1000	1000	1000			W1-5	1000		
1970	1000	3	1000	1000	1000	1000	1000	1000	1000			W1-5	1000		
1970	1000	3	1000	1000	1000	1000	1000	1000	1000			W1-8	1000		
LABORATORY INSTRUMENTS COMMENTS										SAMPLE COMMENT					
COMPOSITE DESCRIPTION															
SAMPLE CONDITION (UPON RECEIPT FOR LABORATORY)															
TEMPERATURE															
COOLER SEAL															
LABORATORY INSTRUMENTS COMMENTS															
COMPOSITE DESCRIPTION															
SAMPLE CONDITION (UPON RECEIPT FOR LABORATORY)															
TEMPERATURE															
COOLER SEAL															

White - Laboratory; Pink - Laboratory, Canary - Project File; Magenta - Data Management

000927-14



Date: 03-29-2005  
 EMAX Batch No.: 050073

Attn: Lynn Jefferson

Earth Tech Fu, Inc.  
 1040 S. Deane Ave, Suite 200  
 Santa Ana CA 92705

Subject: Laboratory Request  
 Project: MIA, Site 1, CTJ 86

Enclosed in the Laboratory Report for samples received on 03/09/05. The data reported include:

Sample ID	Container	Col. Date	Matrix	Analysis
06-S1-026	0073-01	05/07/05	WATER	MERCURY DISSOLVED
06-S1-097	0073-02	05/07/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS MERCURY DISSOLVED
06-S1-098	0073-03	05/07/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS MERCURY DISSOLVED
06-S1-100	0073-04	05/07/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS MERCURY DISSOLVED
06-S1-101	0073-05	05/07/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS MERCURY DISSOLVED
06-S1-102	0073-06	05/08/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS MERCURY DISSOLVED
06-S1-103	0073-07	05/08/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS MERCURY DISSOLVED
06-S1-104	0073-08	05/08/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS MERCURY DISSOLVED
06-S1-105	0073-09	05/08/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS MERCURY DISSOLVED
06-S1-097MS	0073-02M	05/07/05	WATER	MERCURY DISSOLVED

1000

A

Sample ID:	Control #:	Collection Date:	Matrix:	Analysis:
96-01 09/982	0973-028	05/07/05	WATER	SEMI-VOLATILE ORGANICS BY GC/MS MERCURY DISSOLVED SEMI-VOLATILE ORGANICS BY GC/MS

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

*[Signature]*  
Xiao Y. Pang, Ph.D.  
Laboratory Director

1013



**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05C073

**SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS**

Nine (9) water samples were received on 03/09/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Tuning and Calibration**

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

Recoveries were within QC limit.

**6. Matrix Spike/Matrix Spike Duplicate**

Sample C073-02 was spiked. All recoveries were within QC limit.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All results were met.







## SEM: VOLATILE ORGANICS BY GC/MS

Client:	TEBA TECH, INC.	Date Collected:	05/17/05
Project:	TEBA SITE 1, CTO 86	Date Received:	05/19/05
Sample:	05-13-100	Date Extracted:	05/19/05 18:10
Lab Site:	CE/3-9	Date Analyzed:	05-17-05 10:59
Lab File ID:	RAN223	Cr UTTION Factor:	36
Ext. Batch ID:	SWC023W	Matrix:	WATER
Calib. Ref.:	RAN022	X Axis Scale:	56
		Instrument ID:	T-041

NAME: EPH	Q	AL (uq/L)	AL (uq/L)	AL (uq/L)
1	1	NE	5	5
2	2	NE	5	5
3	3	NE	5	5
4	4	NE	5	5
5	5	NE	5	5
6	6	NE	5	5
7	7	NE	5	5
8	8	NE	5	5
9	9	NE	5	5
10	10	NE	5	5
11	11	NE	5	5
12	12	NE	5	5
13	13	NE	5	5
14	14	NE	5	5
15	15	NE	5	5
16	16	NE	5	5
17	17	NE	5	5
18	18	NE	5	5
19	19	NE	5	5
20	20	NE	5	5
21	21	NE	5	5
22	22	NE	5	5
23	23	NE	5	5
24	24	NE	5	5
25	25	NE	5	5
26	26	NE	5	5
27	27	NE	5	5
28	28	NE	5	5
29	29	NE	5	5
30	30	NE	5	5
31	31	NE	5	5
32	32	NE	5	5
33	33	NE	5	5
34	34	NE	5	5
35	35	NE	5	5
36	36	NE	5	5
37	37	NE	5	5
38	38	NE	5	5
39	39	NE	5	5
40	40	NE	5	5
41	41	NE	5	5
42	42	NE	5	5
43	43	NE	5	5
44	44	NE	5	5
45	45	NE	5	5
46	46	NE	5	5
47	47	NE	5	5
48	48	NE	5	5
49	49	NE	5	5
50	50	NE	5	5
51	51	NE	5	5
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75	75	NE	5	5
76	76	NE	5	5
77	77	NE	5	5
78	78	NE	5	5
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86	86	NE	5	5
87	87	NE	5	5
88	88	NE	5	5
89	89	NE	5	5
90	90	NE	5	5
91	91	NE	5	5
92	92	NE	5	5
93	93	NE	5	5
94	94	NE	5	5
95	95	NE	5	5
96	96	NE	5	5
97	97	NE	5	5
98	98	NE	5	5
99	99	NE	5	5
100	100	NE	5	5

SUBSTRATE NAME (mg)	RECOVERY	60' TIME
0.5% INTERCUCURINE	81	25-35
1% HYDROXYMETHYL	87	35-45
2% LUCURPHEN	92	35-45
4% TROMETHEN	92	35-45
PARALDEHYDE	91	45-55
FORMALIN - 0.5%	92	45-55

```

1: 4-pointing 1 unit
2: 4-point 2d unwrapped from 3-point 1d and 1
3: 4-point 2d unwrapped from 2-point 1d and 1

```

2007











NO. 55208/82793  
 (ENH) VOLATILE ORGANICS BY GC/MS

Client :	TSRA TECH (U) INC	Date Issued:	13/05/15
Project :	MA 5116 1, 2nd Fl	Date Received:	13/05/15
Branch No :	5101	Date Returned:	13/05/15
Survey ID :	5101-1-1	Date Analysed:	13/05/15
Lab Ref ID :	1055-1	Distal Ann Factor:	91
Lab File ID :	200601	Matrix :	W1818
Est. Plan ID :	501250	2 Moisture :	W1818
File Path :	new	Inst/Instep ID :	1-C01

[illegible]

CASE NARRATIVE

CLIENT: TETRA TECH PW, INC.  
PROJECT: MFA, SITE 1, CTC 58  
SDG: 05C073

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Nine (9) water samples were received on 03/09/05 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, 3<sup>rd</sup> edition.

1. Holding Time  
Analysis met holding time criteria.
2. Method Blank  
Method blank was free of contamination at the reporting limit.
3. Lab Control Sample/Lab Control Sample Duplicate  
Lab control results were within QC limit.
4. Serial Dilution / Post-Analytical Spike  
Sample 0073-02 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.
5. Matrix Spike/Matrix Spike Duplicate  
Sample 0073-02 was spiked. All recoveries were within QC limit.
6. Sample Analysis  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.  
All samples were reported from dilution runs due to matrix interference.

14704

Project	: JPMI 2004 WJ 167
Version	: MR, SFE - LTO 98
Basis do.	: INCOTERMS

Matrix	: WAFR
Incubation	: 100 °C

[illegible]

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** March 7 through March 8, 2005  
**LDC Report Date:** April 14, 2005  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05C073

**Sample Identification**

86-S1-096  
86-S1-097  
86-S1-098  
86-S1-100  
86-S1-101  
86-S1-102  
86-S1-103  
86-S1-104\*\*  
86-S1-105  
86-S1-097MS  
86-S1-097MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

#### **i. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

#### **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

#### **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

#### **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

#### **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatiles were found in the method blanks.

#### **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
00-01-102	Chrysene-d12	477919 (579220-2316892)	Pyrene Butylbenzylphthalate 3,3'-Dichlorobenzidine Benzo(a)anthracene Chrysene Bis(2-ethylhexyl)phthalate	J (all detects) UJ (all non-detects)	P

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.



#### **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

#### **XVI. Field Duplicates**

Samples 86-S1-103 and 86-S1-104\*\* were identified as field duplicates. No volatiles were detected in any of the samples.

#### **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 05C073**

SDG	Sample	Compound	Flag	A or P	Reason
05C073	88-S1-102	Pyrene Butylbenzylphthalate 3,3'-Dichlorobenzidine Benzo[a]anthracene Chrysene Bis(2-ethylhexyl)phthalate	J (all detects) UJ (all non-detects)	P	Internal standards (area)

**Moffett Airfield, MFA Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05C073**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** March 7 through March 8, 2005  
**LDC Report Date:** April 11, 2005  
**Matrix:** Water  
**Parameters:** Dissolved Mercury  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05C073

**Sample Identification**

86-S1-096  
86-S1-097  
86-S1-098  
86-S1-100  
86-S1-101  
86-S1-102  
86-S1-103  
86-S1-104\*\*  
86-S1-105  
86-S1-097MS  
86-S1-097MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## **IV. ICP Interference Check Sample (ICS) Analysis**

ICP interference check sample analysis is not required by the method.

## **V. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VI. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

NUMBER

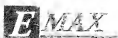
10329

## CHAIN-OF-CUSTODY RECORD

[illegible]

White - Laboratory; Pink - Laboratory; Canary - Project File; Mewla - Data Management

0016915-12



LABORATORIES, INC.  
1535 N. 20th Street  
Torrance, CA 90501  
Tel. (310) 418-6885  
Fax. (310) 418-0515

Date: 05-29-2005  
Lab Report No.: 050391

Atttn: Lynn Jefferson

Tetra Tech Pte. Ltd.  
1740 E. Davis Ave., Suite 210  
Santa Ana, CA 92705

Subject: Laboratory Report  
Project: WFA, Site 1, CTO Ab

Enclosed is the Laboratory report for samples received on  
03/16/05. The data reported include:

Sample ID	Client #	Col Date	Matrix	Analysis
06-01-006	0001-01	03/08/05	WATER	MERCURY DISSOLVABLE SEMI-VOLATILE TOXIC BY GMS
06-01-007	0001-02	03/08/05	WATER	MERCURY DISSOLVABLE SEMI-VOLATILE TOXIC BY GMS

The results are summarized on the following pages.

Please let me know if you have any questions concerning  
these results.

Sincerely yours,

\_\_\_\_\_  
Zoe M. King, Ph.D.  
Laboratory Director

# CASE NARRATIVE

CLIENT: TETRA TECH FW, INC.  
PROJECT: MFA, SITE 1, CTO 88  
SDG: 05C081

## GW 3520C/8270C SEMI VOLATILE ORGANICS BY GC/MS

Two (2) water samples were received on 03/10/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

- Holding Time**  
Analytical holding time was met.
- Tuning and Calibration**  
Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.
- Method Blank**  
Method blank was free of contamination at the reporting limit.
- Surrogate Recovery**  
Recoveries were within QC limit.
- Lab Control Sample/Lab Control Sample Duplicate**  
Recoveries were within QC limit.
- Matrix Spike/Matrix Spike Duplicate**  
No MS/MSD sample was designated in this SDG.
- Sample Analysis**  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.







# CASE NARRATIVE

CLIENT: TETRA TECH FW, INC.

PROJECT: MFA, SITE 1, CTO 86

SDG: 05C081

## METHOD 7470A DISSOLVED MERCURY BY COLD VAPOR

Two (2) water samples were received on 03/10/05 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

### 1. Holding Time

Analysis met holding time criteria.

### 2. Method Blank

Method blank was free of contamination at the reporting limit.

### 3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

### 4. Serial Dilution / Post-Analytical Spike

Sample C073-02 from another SDG was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

### 5. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

### 6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Samples were retested from dilution runs due to matrix interference.

	height	weight	fat	fat2	fat3	fat4	fat5	fat6	fat7	fat8	fat9	fat10	fat11	fat12	fat13	fat14	fat15	fat16	fat17	fat18	fat19	fat20	fat21	fat22	fat23	fat24	fat25	fat26	fat27	fat28	fat29	fat30	fat31	fat32	fat33	fat34	fat35	fat36	fat37	fat38	fat39	fat40	fat41	fat42	fat43	fat44	fat45	fat46	fat47	fat48	fat49	fat50	fat51	fat52	fat53	fat54	fat55	fat56	fat57	fat58	fat59	fat60	fat61	fat62	fat63	fat64	fat65	fat66	fat67	fat68	fat69	fat70	fat71	fat72	fat73	fat74	fat75	fat76	fat77	fat78	fat79	fat80	fat81	fat82	fat83	fat84	fat85	fat86	fat87	fat88	fat89	fat90	fat91	fat92	fat93	fat94	fat95	fat96	fat97	fat98	fat99	fat100	fat101	fat102	fat103	fat104	fat105	fat106	fat107	fat108	fat109	fat110	fat111	fat112	fat113	fat114	fat115	fat116	fat117	fat118	fat119	fat120	fat121	fat122	fat123	fat124	fat125	fat126	fat127	fat128	fat129	fat130	fat131	fat132	fat133	fat134	fat135	fat136	fat137	fat138	fat139	fat140	fat141	fat142	fat143	fat144	fat145	fat146	fat147	fat148	fat149	fat150	fat151	fat152	fat153	fat154	fat155	fat156	fat157	fat158	fat159	fat160	fat161	fat162	fat163	fat164	fat165	fat166	fat167	fat168	fat169	fat170	fat171	fat172	fat173	fat174	fat175	fat176	fat177	fat178	fat179	fat180	fat181	fat182	fat183	fat184	fat185	fat186	fat187	fat188	fat189	fat190	fat191	fat192	fat193	fat194	fat195	fat196	fat197	fat198	fat199	fat200	fat201	fat202	fat203	fat204	fat205	fat206	fat207	fat208	fat209	fat210	fat211	fat212	fat213	fat214	fat215	fat216	fat217	fat218	fat219	fat220	fat221	fat222	fat223	fat224	fat225	fat226	fat227	fat228	fat229	fat230	fat231	fat232	fat233	fat234	fat235	fat236	fat237	fat238	fat239	fat240	fat241	fat242	fat243	fat244	fat245	fat246	fat247	fat248	fat249	fat250	fat251	fat252	fat253	fat254	fat255	fat256	fat257	fat258	fat259	fat260	fat261	fat262	fat263	fat264	fat265	fat266	fat267	fat268	fat269	fat270	fat271	fat272	fat273	fat274	fat275	fat276	fat277	fat278	fat279	fat280	fat281	fat282	fat283	fat284	fat285	fat286	fat287	fat288	fat289	fat290	fat291	fat292	fat293	fat294	fat295	fat296	fat297	fat298	fat299	fat300	fat301	fat302	fat303	fat304	fat305	fat306	fat307	fat308	fat309	fat310	fat311	fat312	fat313	fat314	fat315	fat316	fat317	fat318	fat319	fat320	fat321	fat322	fat323	fat324	fat325	fat326	fat327	fat328	fat329	fat330	fat331	fat332	fat333	fat334	fat335	fat336	fat337	fat338	fat339	fat340	fat341	fat342	fat343	fat344	fat345	fat346	fat347	fat348	fat349	fat350	fat351	fat352	fat353	fat354	fat355	fat356	fat357	fat358	fat359	fat360	fat361	fat362	fat363	fat364	fat365	fat366	fat367	fat368	fat369	fat370	fat371	fat372	fat373	fat374	fat375	fat376	fat377	fat378	fat379	fat380	fat381	fat382	fat383	fat384	fat385	fat386	fat387	fat388	fat389	fat390	fat391	fat392	fat393	fat394	fat395	fat396	fat397	fat398	fat399	fat400	fat401	fat402	fat403	fat404	fat405	fat406	fat407	fat408	fat409	fat410	fat411	fat412	fat413	fat414	fat415	fat416	fat417	fat4
--	--------	--------	-----	------	------	------	------	------	------	------	------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	------

[illegible][illegible]

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86

**Collection Date:** March 8, 2005

**LDC Report Date:** April 14, 2005

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05C081

**Sample Identification**

86-S1-106\*\*

86-S1-107

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.



## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 05C081**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05C081**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** March 8, 2005  
**LDC Report Date:** April 11, 2005  
**Matrix:** Water  
**Parameters:** Dissolved Mercury  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05C081

**Sample Identification**

86-S1-106\*\*

86-S1-107

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## **IV. ICP Interference Check Sample (ICS) Analysis**

ICP interference check sample analysis is not required by the method.

## **V. Matrix Spike Analysis**

The laboratory has indicated that there were no matrix spike (MS) analyses specified for the samples in this SDG, and therefore matrix spike analyses were not performed for this SDG.

## **VI. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

#### **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

#### **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

#### **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

#### **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

#### **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA Site 1, CTO 86**  
**Dissolved Mercury - Data Qualification Summary - SDG 05C081**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 05C081**

No Sample Data Qualified in this SDG

## TETRA TECH

1230 Columbia Street, Suite 400  
San Diego, CA 92101 (619) 24-8804

## CHAIN-OF-CUSTODY RECORD

NUMBER 10358

OBJECT NAME		PURCHASE ORDER NO.		PROJECT NO.		PROJECT CONTACT PHONE NUMBER		PROJECT CONTACT		LABORATORY NAME		Project Information Section Do not submit to Laboratory	
DATE COLLECTED	TIME COLLECTED	DATE COLLECTED	TIME COLLECTED	NO OF CONTAINER	LEVEL	T	A	T	A	COMMENTS	LOCATION	DEPTH START END	
10FFETT- SITE 1	20842 TASK 23									EMAX			
YARFETT FIELD, CA	1790.08CE									LABORATORY ID (FOR LABORATORY)			
UNDER NAME Bill OGLEZ	850458348392									05D061			
PROJECT CONTACT YANN JAFFERSON	(949) 756-7578												
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO OF CONTAINER	LEVEL	T	A	T	A					
26-SI-122	4-11-05	1300	3	10	W	10	W	10		RUN MS/MSD	TRIP BLANK	- -	
26-SI-110	4-11-05	1330	33	10	W	10	W	10			W1-19	- -	
26-SI-112	4-11-05	1530	11	10	W	10	W	10			W1-14	- -	
26-SI-113	4-11-05	0900	11	10	W	10	W	10			W1-12R	- -	
26-SI-114	4-11-05	0930	11	10	W	10	W	10			W1-12C	- -	
26-SI-115	4-12-05	1015	11	10	W	10	W	10			W1-22	- -	
LABORATORY INSTRUCTIONS/COMMENTS													
METALS & MERCURY by FIRM FILTERED													
COMPOSITE DESCRIPTION													
SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)													
TEMPERATURE: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN													
COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN													
SAMPLING COMMENT													
SITE 1 ANNUAL SEMI-ANNUAL 2005													

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management





Date: 05-09-2005  
EMAX Batch No.: 090001

Attn: Lynn Jefferson

Petra Tech. Co., Inc.  
1963 E. Duane Ave., Suite 200  
Santa Ana, CA 92705

Subject: Laboratory Report  
Project: HIA, Site 1, CTO 86

Attached is the laboratory report for samples received on 04/13/05. The data reported include:

Sample ID	Detrital #	Oil Date	Matrix	Analysis
86 ST-107	D007-01	04/11/05	WATER	VOLATILE ORGANICS BY GC/MS
86 ST-110	D007-02	04/11/05	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOPHOSPHORIC POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED NITROGEN
86 ST-112	D007-03	04/11/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOPHOSPHORIC POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED NITROGEN
86 ST-113	D007-04	04/12/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOPHOSPHORIC POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED NITROGEN SEMIVOLATILE ORGANICS BY GC/MS

Sample ID	Control #	Col. Date	Matrix	Analysis
66-S1-112	0061-05	05/12/05	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHEMICAL POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED M200B0W SEMI-VOLATILE ORGANICS BY GC/MS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHEMICAL POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED M200B0W
66-S1-115	0061-06	05/12/05	WATER	SEMI-VOLATILE ORGANICS BY GC/MS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHEMICAL POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED M200B0W
66-S1-11040	0061-028	05/11/05	WATER	SEMI-VOLATILE ORGANICS BY GC/MS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHEMICAL POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED M200B0W
66-S1-11040P	0061-025	05/11/05	WATER	SEMI-VOLATILE ORGANICS BY GC/MS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHEMICAL POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED M200B0W SEMI-VOLATILE ORGANICS BY GC/MS

Notes: Results for Dissolved Metals which were submitted to Columbia Analytical Services, Inc. may be found in SDC 034523

The results are summarized on the following pages.

Please feel free to call, if you have any questions concerning these results.

Sincerely yours,

*[Signature]*  
 Kim N. Wang, Ph.D.  
 Laboratory Director

1001

CASE NARRATIVE

CLIENT: TETRA TECH FW, INC.  
PROJECT: MFA, SITE 1, CTO 86  
SDG: 051006

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

Six (6) water samples were received on 04/13/06 for Volatile Organic analysis by Method 5030B/8260B in accordance with USEPA SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12 hour intervals. All QC requirements were met.

3. Method Blank

Method blanks were free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit except Toluene-d8 in LC51A but recovery of target analyte met QC criteria.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

Sample D051-02 was spiked. All recoveries were within QC limit.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

WILEY-INTERSCIENCE BY MAIL

Site No.	111-1A-100-100	Date Collected:	04/11/05
Map No.	001	Date Received:	04/13/05
Batch No.	001	Date Extracted:	04/16/05 01:19
Sample ID:	001-100-100	Date Analyzed:	04/16/05 01:19
Lab Sample ID:	001-100-100	Distillation Factor:	1
Lab Sample ID:	001-100-100	Moisture:	NA
Lab Sample ID:	001-100-100	Instrument ID:	1-002

PARAMETERS	RESULTS	REMARKS	UNIT
1. 1,2-DICHLOROETHANE	ND		5
2. 1,1-DICHLOROETHANE	ND		5
3. 1,2-DICHLOROBENZENE	ND		5
4. 1,3-DICHLOROBENZENE	ND		5
5. 1,4-DICHLOROBENZENE	ND		5
6. 1,1-DICHLOROETHANE	ND		5
7. 1,2-DICHLOROBENZENE	ND		5
8. 1,3-DICHLOROBENZENE	ND		5
9. 1,4-DICHLOROBENZENE	ND		5
10. 1,1-DICHLOROBENZENE	ND		5
11. 1,2-DICHLOROBENZENE	ND		5
12. 1,3-DICHLOROBENZENE	ND		5
13. 1,4-DICHLOROBENZENE	ND		5
14. 1,1-DICHLOROBENZENE	ND		5
15. 1,2-DICHLOROBENZENE	ND		5
16. 1,3-DICHLOROBENZENE	ND		5
17. 1,4-DICHLOROBENZENE	ND		5
18. 1,1-DICHLOROBENZENE	ND		5
19. 1,2-DICHLOROBENZENE	ND		5
20. 1,3-DICHLOROBENZENE	ND		5
21. 1,4-DICHLOROBENZENE	ND		5
22. 1,1-DICHLOROBENZENE	ND		5
23. 1,2-DICHLOROBENZENE	ND		5
24. 1,3-DICHLOROBENZENE	ND		5
25. 1,4-DICHLOROBENZENE	ND		5
26. 1,1-DICHLOROBENZENE	ND		5
27. 1,2-DICHLOROBENZENE	ND		5
28. 1,3-DICHLOROBENZENE	ND		5
29. 1,4-DICHLOROBENZENE	ND		5
30. 1,1-DICHLOROBENZENE	ND		5
31. 1,2-DICHLOROBENZENE	ND		5
32. 1,3-DICHLOROBENZENE	ND		5
33. 1,4-DICHLOROBENZENE	ND		5
34. 1,1-DICHLOROBENZENE	ND		5
35. 1,2-DICHLOROBENZENE	ND		5
36. 1,3-DICHLOROBENZENE	ND		5
37. 1,4-DICHLOROBENZENE	ND		5
38. 1,1-DICHLOROBENZENE	ND		5
39. 1,2-DICHLOROBENZENE	ND		5
40. 1,3-DICHLOROBENZENE	ND		5
41. 1,4-DICHLOROBENZENE	ND		5
42. 1,1-DICHLOROBENZENE	ND		5
43. 1,2-DICHLOROBENZENE	ND		5
44. 1,3-DICHLOROBENZENE	ND		5
45. 1,4-DICHLOROBENZENE	ND		5
46. 1,1-DICHLOROBENZENE	ND		5
47. 1,2-DICHLOROBENZENE	ND		5
48. 1,3-DICHLOROBENZENE	ND		5
49. 1,4-DICHLOROBENZENE	ND		5
50. 1,1-DICHLOROBENZENE	ND		5
51. 1,2-DICHLOROBENZENE	ND		5
52. 1,3-DICHLOROBENZENE	ND		5
53. 1,4-DICHLOROBENZENE	ND		5
54. 1,1-DICHLOROBENZENE	ND		5
55. 1,2-DICHLOROBENZENE	ND		5
56. 1,3-DICHLOROBENZENE	ND		5
57. 1,4-DICHLOROBENZENE	ND		5
58. 1,1-DICHLOROBENZENE	ND		5
59. 1,2-DICHLOROBENZENE	ND		5
60. 1,3-DICHLOROBENZENE	ND		5
61. 1,4-DICHLOROBENZENE	ND		5
62. 1,1-DICHLOROBENZENE	ND		5
63. 1,2-DICHLOROBENZENE	ND		5
64. 1,3-DICHLOROBENZENE	ND		5
65. 1,4-DICHLOROBENZENE	ND		5
66. 1,1-DICHLOROBENZENE	ND		5
67. 1,2-DICHLOROBENZENE	ND		5
68. 1,3-DICHLOROBENZENE	ND		5
69. 1,4-DICHLOROBENZENE	ND		5
70. 1,1-DICHLOROBENZENE	ND		5
71. 1,2-DICHLOROBENZENE	ND		5
72. 1,3-DICHLOROBENZENE	ND		5
73. 1,4-DICHLOROBENZENE	ND		5
74. 1,1-DICHLOROBENZENE	ND		5
75. 1,2-DICHLOROBENZENE	ND		5
76. 1,3-DICHLOROBENZENE	ND		5
77. 1,4-DICHLOROBENZENE	ND		5
78. 1,1-DICHLOROBENZENE	ND		5
79. 1,2-DICHLOROBENZENE	ND		5
80. 1,3-DICHLOROBENZENE	ND		5
81. 1,4-DICHLOROBENZENE	ND		5
82. 1,1-DICHLOROBENZENE	ND		5
83. 1,2-DICHLOROBENZENE	ND		5
84. 1,3-DICHLOROBENZENE	ND		5
85. 1,4-DICHLOROBENZENE	ND		5
86. 1,1-DICHLOROBENZENE	ND		5
87. 1,2-DICHLOROBENZENE	ND		5
88. 1,3-DICHLOROBENZENE	ND		5
89. 1,4-DICHLOROBENZENE	ND		5
90. 1,1-DICHLOROBENZENE	ND		5
91. 1,2-DICHLOROBENZENE	ND		5
92. 1,3-DICHLOROBENZENE	ND		5
93. 1,4-DICHLOROBENZENE	ND		5
94. 1,1-DICHLOROBENZENE	ND		5
95. 1,2-DICHLOROBENZENE	ND		5
96. 1,3-DICHLOROBENZENE	ND		5
97. 1,4-DICHLOROBENZENE	ND		5
98. 1,1-DICHLOROBENZENE	ND		5
99. 1,2-DICHLOROBENZENE	ND		5

TURBULATE PARAMETERS	RECOVERY	DC LINA
1. 2-HL DR. DROPTIME (S)	150	20-130
COLLISION-RM	0	20-25
REACTOR L/D WITH SDC	150	25-30

K1	Reporting limit
R	Out of 92
E	Exceeded calibration value
F	Found in assist/spot method blank
S	Value between K1 and #D5
D	Value from dilution analysis
LOD	Obliterated out

SN 54506;32502  
TREAT:LF 0530A:CS 0Y AC/MS

```

=====
Client      : TETR TECH INC.                               Date Collected: 01/11/05
Project     : MFA SITE 1, TIC 86                           Date Received: 01/11/05
Batch No.   : 050061                                         Date Extracted: 01/11/05 01:56
Sample ID   : 86-S-110                                       Date Analyzed: 01/11/05 01:56
Lab Sample ID: 0661228
Lab Site ID : 300175
EAT Sample ID: 0502013
DW123 Ref.: R00025
=====
Matrix:
- Nucleic : NA
- Instrument ID : T-052
=====

```

[illegible]

SAMPLE NO	WAVELENGTH	5 SECOND	10 MIN
1,2-DICHLOROETHANE-34	100	100	100
TOLUENE-100	100	100	100
DIETHYL ETHER-100	100	100	100

- ```

C 4. : Reporting Year
* 5. : Out of QC
E 6. : Expanded Detection or Panel
D 7. : Found in: water (ated method) time
J 8. : Value between E.L. and QC
D 9. : Value from dilution analysis
D 10. : Diluted out

```

## RELATIVE DYNAMICS BY GCMS

|              |                    |                  |                |
|--------------|--------------------|------------------|----------------|
| Client:      | ETRA TECH INC.     | Date Collected:  | 06/11/09       |
| Project:     | MFA SITE (1, 2) 96 | Date Received:   | 06/15/09       |
| Batch No.:   | 050261             | Date Extracted:  | 06/16/09 09:33 |
| Sample ID:   | 96-51-13           | Date Analyzed:   | 06/16/09 09:35 |
| Lab Supp ID: | 000000             | Dilution Factor: | 1              |
| Lab ID:      | 000000             | Matrix:          | WATER          |
| Lab Stn No:  | 000000             | Lab Name:        | WATER          |
| Lab ID:      | 000000             | Instrument ID:   | 000000         |

[illegible]

| SUPPORT PARAMETERS | NECESSARY | OPTIONAL |
|--------------------|-----------|----------|
| 2-DIMENSIONAL      | 14        | 37       |
| 3-DIMENSIONAL      | 17        | 44       |
| 4-DIMENSIONAL      | 20        | 51       |

```

2) : Reporting Unit:
    Out of 32
3) : Accepted calibration range:
    Found in accelerated method blank
4) : Value between 9.1 and 92:
    Value from 0.1 out of analysis
5) : Diluted out

```

S- 50308/82608  
VOLATILE ORGANICS 3/ 62/82

```

Client      : LIMA TECH INC.
Product     : R/C S/N 1, C/C #0
Batch No.   : 090204
Sample      : 00-51-172
Lab Sample ID: 010101
Lab File ID: PDF172
Lab Batch ID: 000255
Exit Date By: R00025
Date Collected: 04/12/05
Date Received: 04/13/05
Date Extracted: 04/16/05 03:18
Date Analyzed: 04/16/05 03:18
Dilution Factor: 1
Matrix      : WATER
            : N/A
Instrument ID : F002

```

| APARETERS                | RESULTS<br>(ug/L) | Q<br>(ug/L) | PD<br>(ug/L) |
|--------------------------|-------------------|-------------|--------------|
| 1 1-2-ETHYLCHLOROBENZENE | ND                | 0           | 0            |
| 2 1-ETHYLCHLOROBENZENE   | ND                | 0           | 0            |
| 3 2-ETHYLCHLOROBENZENE   | ND                | 0           | 0            |
| 4 1-ETHYLCHLOROBENZENE   | ND                | 0           | 0            |
| 5 1-CHLOROBENZENE        | ND                | 0           | 0            |
| 6 1-CHLOROBENZENE        | ND                | 0           | 0            |
| 7 1-CHLOROBENZENE        | ND                | 0           | 0            |
| 8 1-CHLOROBENZENE        | ND                | 0           | 0            |
| 9 1-CHLOROBENZENE        | ND                | 0           | 0            |
| 10 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 11 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 12 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 13 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 14 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 15 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 16 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 17 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 18 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 19 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 20 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 21 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 22 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 23 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 24 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 25 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 26 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 27 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 28 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 29 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 30 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 31 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 32 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 33 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 34 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 35 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 36 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 37 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 38 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 39 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 40 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 41 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 42 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 43 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 44 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 45 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 46 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 47 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 48 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 49 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 50 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 51 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 52 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 53 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 54 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 55 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 56 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 57 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 58 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 59 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 60 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 61 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 62 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 63 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 64 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 65 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 66 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 67 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 68 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 69 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 70 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 71 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 72 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 73 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 74 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 75 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 76 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 77 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 78 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 79 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 80 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 81 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 82 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 83 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 84 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 85 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 86 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 87 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 88 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 89 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 90 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 91 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 92 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 93 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 94 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 95 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 96 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 97 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 98 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 99 1-CHLOROBENZENE       | ND                | 0           | 0            |
| 100 1-CHLOROBENZENE      | ND                | 0           | 0            |

| SUMMARY PARAMETERS    | RECOVERY | SE (LIM) |
|-----------------------|----------|----------|
| 1. 2-DECEMBER HAVE-DO | 117      | 60-130   |
| COLLAGE ON            | 116      | 60-130   |
| FRONT-LOPER LINE      | 60       | 70-120   |

```

R.1.1 : printing list
R.1.2 : Out of R
R.1.3 : expanded calibration range
R.1.4 : found in calibration method from
R.1.5 : Value between 0.1 and 100
R.1.6 : Value from dilution analysis
R.1.7 : diluted out

```

SM 5430R/C2/96  
VOLATILE ORGANICS BY GC/MS

```

=====
Lot#      : 1474 FROM FW, INC.             Date Rec'd: 04/12/75
Lot#     : MFA, SITE 1, LTD 83             Date Rec'd: 04/13/75
Batch No. : 950064                         Date Exam'd: 04/20/95 15:24
Sample    : 95-S1-174                     Date Analyzed: 04/22/95 15:26
Sample ID : 064-03                        Dilution Factor:
Lot#      : 19: 823386                      Matrix:
Ext. Btch : V050532                        Moisture: 44
Calib. Adj.: 800221                       Instrument ID: 1-005
=====

```

[illegible]

QUESTIONS: 2014-15 FEB 2015 10:00:00 CC 11/15/15

| Variable                | Mean | SD  | Min | Max |
|-------------------------|------|-----|-----|-----|
| Age                     | 31.2 | 4.5 | 25  | 45  |
| Gender                  | 1.2  | 0.4 | 1   | 2   |
| Education               | 12.5 | 1.2 | 10  | 16  |
| Income                  | 15.8 | 3.2 | 10  | 25  |
| Marital Status          | 1.8  | 0.4 | 1   | 2   |
| Religious Beliefs       | 2.5  | 0.8 | 1   | 4   |
| Political Views         | 3.2  | 1.0 | 1   | 5   |
| Health Status           | 1.5  | 0.5 | 1   | 3   |
| Stress Level            | 2.8  | 0.9 | 1   | 4   |
| Life Satisfaction       | 3.5  | 1.1 | 1   | 5   |
| Work-Life Balance       | 2.2  | 0.7 | 1   | 4   |
| Community Involvement   | 1.9  | 0.6 | 1   | 3   |
| Environmental Awareness | 2.7  | 0.8 | 1   | 4   |
| Technological Usage     | 3.8  | 1.2 | 1   | 5   |
| Travel Frequency        | 1.5  | 0.5 | 1   | 3   |
| Volunteering Hours      | 2.1  | 0.7 | 1   | 4   |
| Charitable Donations    | 1.8  | 0.6 | 1   | 3   |
| Political Participation | 2.4  | 0.8 | 1   | 4   |
| Religious Practice      | 2.0  | 0.7 | 1   | 3   |
| Health Habits           | 1.7  | 0.6 | 1   | 3   |
| Stress Management       | 2.3  | 0.8 | 1   | 4   |
| Life Goals              | 3.0  | 1.0 | 1   | 5   |
| Work-Life Balance       | 2.2  | 0.7 | 1   | 4   |
| Community Involvement   | 1.9  | 0.6 | 1   | 3   |
| Environmental Awareness | 2.7  | 0.8 | 1   | 4   |
| Technological Usage     | 3.8  | 1.2 | 1   | 5   |
| Travel Frequency        | 1.5  | 0.5 | 1   | 3   |
| Volunteering Hours      | 2.1  | 0.7 | 1   | 4   |
| Charitable Donations    | 1.8  | 0.6 | 1   | 3   |
| Political Participation | 2.4  | 0.8 | 1   | 4   |
| Religious Practice      | 2.0  | 0.7 | 1   | 3   |
| Health Habits           | 1.7  | 0.6 | 1   | 3   |
| Stress Management       | 2.3  | 0.8 | 1   | 4   |
| Life Goals              | 3.0  | 1.0 | 1   | 5   |

```

R.L.      Seawater (ml)
*          Out of
0         Exceeded calibration range
0         Found in absorption method range
0         Value between 2.5 and 40.
0         Value type dilution analysis
0 0.       Diluted out

```





**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTC 86

**SDG:** 05D051

**5W 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS**

Five (5) water samples were received on 04/13/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA 5W/845, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Tuning and Calibration**

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

Recoveries were within QC limit.

**6. Matrix Spike/Matrix Spike Duplicate**

Sample D051-02 was spiked. All recoveries were within QC limit.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.





FM: UNTL 1115Z ORIGIN: CS BY: GC/MS

|         |                     |                 |          |
|---------|---------------------|-----------------|----------|
| Project | WMA SITE 1, COT SE  | Date Collected  | 06/10/01 |
| Client  | TETRA TECH, FW, INC | Date Received   | 06/10/01 |
| Sample  | 10: R-51-117        | Date Reported   | 06/10/01 |
| Lab     | 10: R-51-117        | Date Analyzed   | 06/10/01 |
| File    | 10: R-51-117        | Dilution Factor | 1.0      |
| Batch   | 10: R-51-117        | Matrix          | WATER    |
| Ref     | 10: R-51-117        | Manufacturer    | NO       |
| Int     | 10: R-51-117        | Instrument ID   | 001      |

[illegible]

2009年11月15日 星期三

|                           |    |     |
|---------------------------|----|-----|
| 2.4 (s, 3H, 2,3-DI-METHYL | 69 | 1.0 |
| 2.1 (s, 3H, 1-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
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| 2.1 (s, 3H, 2-METHYL      | 68 | 1.0 |
| 2.1 (s, 3H, 2-METHYL</    |    |     |

WU: Reporting - only  
 11:11:11: Report PR generated from 3 methylated  
 11:11:11: Report PR generated from 3 methylated



SW 35264/8274K  
SEMI VOLATILE ORGANICS BY GC/MS

Client: TETRA TECH III, INC. Date Collected: 04/12/05  
Project: MFA SITE 1, CTO 86 Date Rec'd: 04/18/05  
Sample No.: 95061 Date Analyzed: 04/19/05 18:35  
Lab File ID: 006106 Dilution Factor: 50  
Lab File ID: 006122 Matrix: WATER  
Lab File ID: 006124 Moisture ID: 0-1  
Cutoff: Ref: R00707 Inert: 0-1

| PARAMETERS               | RESULTS<br>(ug/L) | RL<br>(ug/L) | NEL<br>(ug/L) |
|--------------------------|-------------------|--------------|---------------|
| 1. 4-ETHYLCHLOROPHENOL   | ND                | 0.4          | 0.7           |
| 2. 4-ETHYLCHLOROPHENOL   | ND                | 0.4          | 0.7           |
| 3. 4-ETHYLCHLOROPHENOL   | ND                | 0.4          | 0.7           |
| 4. 4-ETHYLCHLOROPHENOL   | ND                | 0.4          | 0.7           |
| 5. 4-ETHYLCHLOROPHENOL   | ND                | 0.4          | 0.7           |
| 6. 4-ETHYLCHLOROPHENOL   | ND                | 0.4          | 0.7           |
| 7. 4-ETHYLCHLOROPHENOL   | ND                | 0.4          | 0.7           |
| 8. 4-ETHYLCHLOROPHENOL   | ND                | 0.4          | 0.7           |
| 9. 4-ETHYLCHLOROPHENOL   | ND                | 0.4          | 0.7           |
| 10. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 11. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 12. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 13. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 14. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 15. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 16. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 17. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 18. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 19. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 20. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 21. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 22. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 23. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 24. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 25. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 26. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 27. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 28. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 29. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 30. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 31. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 32. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 33. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 34. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 35. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 36. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 37. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 38. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 39. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 40. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 41. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 42. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 43. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 44. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 45. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 46. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 47. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 48. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 49. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 50. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 51. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 52. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 53. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 54. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 55. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 56. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 57. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 58. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 59. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 60. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 61. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 62. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 63. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 64. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 65. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 66. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 67. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 68. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 69. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 70. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 71. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 72. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 73. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 74. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 75. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 76. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 77. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 78. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 79. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 80. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 81. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 82. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 83. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 84. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 85. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 86. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 87. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 88. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 89. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 90. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 91. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 92. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 93. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 94. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 95. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 96. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 97. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 98. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 99. 4-ETHYLCHLOROPHENOL  | ND                | 0.4          | 0.7           |
| 100. 4-ETHYLCHLOROPHENOL | ND                | 0.4          | 0.7           |

1. Reporting Limit  
2. Reference for non-detects from 3-detection protocol  
3. Reference for non-detects from 1-detection protocol

# CASE NARRATIVE

CLIENT: TETRA TECH FW, INC.

PROJECT: MFA, SITE 1, CTD 86

SDG: 090661

## SW3520C78981A PESTICIDES

Five (5) water samples were received on 04/13/05 for Pesticides analysis by Method 3520C/6081A, in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

### 1. Holding Time

Analytical holding time was met.

### 2. Instrument Performance and Calibration

Initial calibration was at five-point for Pesticides, all RSDs were within 20%. All confirmatory calibrations were analyzed at 12-hour interval and mean recoveries were within 95-115%. Endrin and DDT breakdown were within QC limits.

### 3. Method Blank

Method blank was free of contamination at the reporting limit.

### 4. Surrogate Recovery

Recoveries were within QC limits.

### 5. Lab Control Sample(s) as Control Sample Duplicates

All recoveries were within QC limits.

### 6. Matrix Spike(s) as Spike Duplicates

Sample D061-02 was spiked. All recoveries were within QC limits.

### 7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

When sample results are confirmed by a second column, the relative percentage difference (RPD) between the two results is calculated. If RPD is less than 40% and no evidence of chromatographic problems, the higher result is reported. If RPD is greater than 40%, the chromatograph is checked for anomalies and results are selected based on the best professional judgment. If no evidence of any chromatographic problems, the higher result is reported.





505047865A  
 PET101066

Client: PETRA TECH, INC.  
 Project: MFA, 9142 E, 200 St  
 Batch No.: 050401  
 Sample ID: 50151-112  
 Lab Sample ID: 0025-03  
 Lab File ID: 50150176  
 Full Name: 05050126  
 Call No.: 50180096  
 Date Received: 05/15/05  
 Date Analyzed: 05/15/05  
 Date Reported: 05/15/05 15:00  
 Name: KATHY ZHANG  
 Calibration Factor: .96  
 Method: 104103  
 Transmittance: 1.86  
 Transmittance ID: 1051008

| PARAMETER                   | RESULTS<br>(mg/L) | AI<br>(mg/L) | IDL<br>(mg/L) |
|-----------------------------|-------------------|--------------|---------------|
| ALPHA-BHC                   | 1001.00           | .047         | .0001, .0004  |
| GAMMA-BHC (EPA/USEPA)       | 1001.00           | .047         | .0001, .0004  |
| DELTA-BHC                   | 1001.00           | .047         | .0001, .0004  |
| HEPTACHLOR                  | 1001.00           | .047         | .0001, .0004  |
| BETA-BHC                    | 1001.00           | .047         | .0001, .0004  |
| ALDRIN                      | 1001.00           | .047         | .0001, .0004  |
| HEPTACHLOR EPOXIDE          | 1001.00           | .047         | .0001, .0004  |
| CHLOROCYCLOPENTADIENE       | 1001.00           | .047         | .0001, .0004  |
| LYNCH-CHLOROCYCLOPENTADIENE | 1001.00           | .047         | .0001, .0004  |
| ENDOSULFAN I                | 1001.00           | .047         | .0001, .0004  |
| DELTA-BHC                   | 1001.00           | .047         | .0001, .0004  |
| HEPTACHLOR                  | 1001.00           | .047         | .0001, .0004  |
| ENDOSULFAN II               | 1001.00           | .047         | .0001, .0004  |
| DELTA-BHC                   | 1001.00           | .047         | .0001, .0004  |
| HEPTACHLOR                  | 1001.00           | .047         | .0001, .0004  |
| ENDOSULFAN SULFATE          | 1001.00           | .047         | .0001, .0004  |
| HEPTACHLOR                  | 1001.00           | .047         | .0001, .0004  |
| ENDOSULFAN                  | 1001.00           | .047         | .0001, .0004  |
| HEPTACHLOR                  | 1001.00           | .047         | .0001, .0004  |
| Supervisory Parameters      | 1001.00           | 1001.00      | 1001.00       |
| ULTRACLEAN-FLUORENE         | 1001.00           | 1001.00      | 1001.00       |
| ULTRACLEAN-FLUORENE         | 1001.00           | 1001.00      | 1001.00       |

Note: Reporting limit  
 left of 1 is related to first column; right of 1 is related to second column  
 1 is included the reported datum







# CASE NARRATIVE

CLIENT: TETRA TECH FW, INC.

PROJECT: MFA, SITE 1, CTO #6

SDG: 05D061

SW3520C/8082  
PCBs

Five (5) water samples were received on 04/13/05 for PCBs analysis by Methou 3520C/8082 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

## 1. Holding Time

Analytical holding time was met.

## 2. Instrument Performance and Calibration

Initial calibration was five points for PCB-1016 and PCB-1260, all RSDs were within 20%. All continue calibrations were analyzed at 12 hour interval and all recoveries were within 85-110%.

## 3. Method Blank

Method blank was free of contamination at the reporting limit.

## 4. Surrogate Recovery

Recoveries were within QC limit.

## 5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

## 6. Matrix Spike/Matrix Spike Duplicate

Sample D061-02 was spiked. All recoveries were within QC limit.

## 7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW55706/8082  
 PCBs

Client: TELPA TECH CM, INC. Date Collected: 04/11/05  
 Project: WFO, SITE 1, CTO 06 Date: 04/13/05  
 Sample ID: 06061-110 Date Analyzed: 04/14/05 13:00  
 Lab File ID: 06061-02 Dilution Factor: 1.0  
 Lab File ID: 06061-04 Matrix: WATER  
 Lab File ID: 06061-06 # Matrices: 64  
 Client Ref.: 06061-06 Instrument ID: 061078

| PARAMETER | RESULTS   | RL     | MDL       |
|-----------|-----------|--------|-----------|
|           | (ug/L)    | (ug/L) | (ug/L)    |
| PCB-1016  | (ND) (ND) | .96    | .24 (.24) |
| PCB-1221  | (ND) (ND) | .96    | .24 (.24) |
| PCB-1237  | (ND) (ND) | .96    | .24 (.24) |
| PCB-1247  | (ND) (ND) | .96    | .24 (.24) |
| PCB-1248  | (ND) (ND) | .96    | .24 (.24) |
| PCB-1254  | (ND) (ND) | .96    | .24 (.24) |
| PCB-1260  | (ND) (ND) | .96    | .24 (.24) |

| SPURGE PARAMETERS | % RECOVERY | QC LIMIT |
|-------------------|------------|----------|
| TELHACH/PCB-1254  | 172/165    | 20-100   |
| DECAH/PCB-1254    | 190/177    | 30-120   |

PL: Reporting Error  
 Error of 1 is related to first column; Error of 1 related to second column  
 ( ) Included the reported value  
 - Not side of QC Limit

SWS20C/b683  
 PCBs

Client : TETRA TECH TM, INC. Date Collected: 06/11/05  
 Project : MIA, SITE 1, C00 38 Date Received: 06/15/05  
 Batch No. : 050061 Date Analyzed: 06/16/05 15:00  
 Sample : C00 38-112 Date Analyzed: 06/16/05 15:00  
 Lab Sample ID: 0061-03 Division Factor: .25  
 Lab File ID: SL180174 Matrix : WATER  
 Site Desk ID: 10060129 % Moisture: 88  
 Oil ID, Ret.: 50163864 Insitu solvent ID : 001000

| PARAMETERS | RESULTS  | RL      |           |
|------------|----------|---------|-----------|
|            |          | ORG (L) | ORG (L)   |
| PCB-1016   | (ND) (R) | .06     | .24   .24 |
| PCB-1221   | (ND) (R) | .06     | .24   .24 |
| PCB-1252   | (ND) (R) | .06     | .24   .24 |
| PCB-1262   | (ND) (R) | .06     | .24   .24 |
| PCB-1246   | (ND) (R) | .06     | .24   .24 |
| PCB-1254   | (ND) (R) | .06     | .24   .24 |
| PCB-1268   | (ND) (R) | .06     | .24   .24 |

| SUMMARY PARAMETERS | % RECOVERY | GC LIMIT |        |
|--------------------|------------|----------|--------|
|                    |            | 10-130   | 30-130 |
| TETRACHLORO-B-PD   | (54) (R)   | 30-130   |        |
| HEPTACHLORO-B-PD   | (65) (R)   | 30-130   |        |

SLA: Report Limit  
 Left of | is related to first column | Right of | related to second column  
 ( ) included the reported column  
 - Out Side of GC Limit



SVS2502-4080  
 PCB-

Client : TELRA TECH INC. Date Collected: 06/12/05  
 Project : M9, Site 1, LTO 66 Date Submitted: 06/15/05  
 Batch No. : 05066 Date Analyzed: 06/16/05 15:00  
 Sample ID: 05-01-113 Date Received: 06/16/05 14:00  
 Lab Subj ID: 0561-06 Dilution Factor: 1.00  
 Lab File ID: R0180186 Matrix : WATER  
 Lab Subj ID: 0700120 Rejection : NA  
 Obj ID: R0180186 Instrument ID : 607020

| PARAMETER | RESULTS<br>(ug/L) | RL<br>(ug/L) | MDL<br>(ug/L) |
|-----------|-------------------|--------------|---------------|
| PCB-1018  | (ND) 40           | 1.1          | .26 .26       |
| PCB-1291  | (ND) ND           | 1.1          | .26 .26       |
| PCB-1232  | (ND) ND           | 1.1          | .26 .26       |
| PCB-1249  | (ND) ND           | 1.1          | .26 .26       |
| PCB-1266  | (ND) ND           | 1.1          | .26 .26       |
| PCB-1234  | (ND) ND           | 1.1          | .26 .26       |
| PCB-1267  | (ND) ND           | 1.1          | .26 .26       |

SIGNATURE PARAMETERS : REDWATER GC L9915  
 TELRA/CLARK-R-TURNER (S) 20 36-150  
 (V) 51 59-120

RL: Reporting Limit  
 (u) or (s) limited to fresh column ; Right of | related to second column  
 (v) returned the reported value  
 \* Not made at RL limit

S05207.0052  
 PCBs

Client : ELITA TECH. INC. Date Collected: 06/12/05  
 Project : EPA, SITE 1, CTO 85 Date Received: 06/13/05  
 Batch No. : 050621 Date Extracted: 06/16/05 13:00  
 Sample ID: 26-ST-119 Date Analyzed: 06/18/05 10:06  
 Lab Name ID: D061-05 Dilution Factor: .96  
 Lab File ID: 06180106 Matrix : WATER  
 EPA Study ID: C0612M % Moisture : NA  
 Calibration ID: 06180094 Instrument ID : 000010

| PARAMETERS | RESULT    | R      | REL       |
|------------|-----------|--------|-----------|
|            | (ug/L)    | (ug/L) | (ug/L)    |
| PCB-1016   | (ND) [ND] | .96    | .26   .26 |
| PCB-1221   | (ND) [ND] | .96    | .26   .26 |
| PCB-1252   | (ND) [ND] | .96    | .26   .26 |
| PCB-1260   | (ND) [ND] | .96    | .26   .26 |
| PCB-1296   | (ND) [ND] | .96    | .26   .26 |
| PCB-1298   | (ND) [ND] | .96    | .26   .26 |

| SUBSTITUTE PARAMETERS | % RECOVERY | OF LIST |
|-----------------------|------------|---------|
| TETRACHLORO-BIPHENYL  | (75) [51]  | 30-130  |
| DIBENZO-BIPHENYL      | (98) [96]  | 30-130  |

Note: Reporting Limit  
 Left of | is related to first column; Right of | related to second column  
 ; ) included the reported column  
 \* Our side of GC LIST

9/25/2016/062  
PCB#

Client : TENNA TECHNOLOGY, INC. Date Submitted: 06/10/05  
Product : MFA, SITE 1, 47% Bg Date Received: 06/15/05  
Batch No. : 050051 Date Estimated: 06/16/05 (13.00)  
Sample ID: 06-S1-115 Date Analyzed: 06/16/05 (14.51)  
Lab Smp ID: 06S1-06 Matrix : WATER  
Lab File ID: 00105206 # Analyte : NA  
Lab Site ID: 020101 # Analyte : NA  
Call No. File : 00105206 Analyte : NA

| PARAMETERS | RESULTS<br>(ug/L) | RL<br>(ug/L) | HDL<br>(ug/L) |
|------------|-------------------|--------------|---------------|
| PCB-1014   | (ND) ND           | .96          | .24   .24     |
| PCB-1021   | (ND) ND           | .96          | .24   .24     |
| PCB-1232   | (ND) ND           | .96          | .24   .24     |
| PCB-1242   | (ND) ND           | .96          | .24   .24     |
| PCB-1245   | (ND) ND           | .96          | .24   .24     |
| PCB-1254   | (ND) ND           | .96          | .24   .24     |
| PCB-1260   | (ND) ND           | .96          | .24   .24     |

| SUBSTRATE PARAMETERS | RECOVERY | DR. (100%) |
|----------------------|----------|------------|
| TEHP/CHLOR-N-HYDRO   | (55) 67  | 30-100     |
| DECAH/CHLOR-N-HYDRO  | (97) 95  | 30-100     |

RL : Reporting Limit  
Left of | is related to first column; Right of | related to second column  
( ) included the reported column  
\* Our scale is 0.01 mg/L

## CASE NARRATIVE

CLIENT: TETRA TECH FW, INC.  
PROJECT: MFA, SITE 1, CTG 88  
SDG: 95D061

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Five (5) water samples were received on 04/13/05 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

## 1. Holding Time

Analysis met holding time criteria.

## 2. Method Blank

Method blank was free of contamination at the reporting limit.

## 3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

## 4. Serial Dilution / Post-Analytical Spike

Sample D061-02 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

## 5. Matrix Spike/Matrix Spike Duplicate

Sample D061-02 was spiked. All recoveries were within QC limit.

## 6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Samples were analyzed at DF 20 due to matrix interference.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 11 through April 12, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05D061

**Sample Identification**

86-S1-122  
86-S1-110  
86-S1-112  
86-S1-113  
86-S1-114\*\*  
86-S1-115  
86-S1-110MS  
86-S1-110MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for all individual compounds.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

For the purposes of technical evaluation, all compounds were evaluated against the 20.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.



## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

#### **XVI. Field Duplicates**

Samples 86-S1-113 and 86-S1-115 were identified as field duplicates. No volatiles were detected in any of the samples.

#### **XVII. Field Blanks**

Sample 86-S1-122 was identified as a trip blank. No volatile contaminants were found in this blank.

**Moffett Airfield, MFA Site 1, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 05D061**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 05D061**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 11 through April 12, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05D061

**Sample Identification**

86-S1-110  
86-S1-112  
86-S1-113  
86-S1-114\*\*  
86-S1-115  
86-S1-110MS  
86-S1-110MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

**Moffett Airfield, MFA Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 05D061**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05D061**

No Sample Data Qualified in this SDG



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 11 through April 12, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Chlorinated Pesticides  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 05D061

**Sample Identification**

86-S1-110  
86-S1-112  
86-S1-113  
86-S1-114\*\*  
86-S1-115  
86-S1-110MS  
86-S1-110MSD

\*\*Indicates sample underwent EPA Level IV review.

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

### **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

### **II. GC/ECD Instrument Performance Check**

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

### **III. Initial Calibration**

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

### **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

The individual 4,4'-DDT and Endrin breakdowns were less than 15.0% .

### **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

#### **XIV. Field Duplicates**

Samples 86-S1-113 and 86-S1-114\*\* were identified as field duplicates. No chlorinated pesticides were detected in any of the samples.

#### **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA Site 1, CTO 86  
Chlorinated Pesticides - Data Qualification Summary - SDG 05D061**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86  
Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG  
05D061**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 11 through April 12, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Polychlorinated Biphenyls  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05D061

**Sample Identification**

86-S1-110  
86-S1-112  
86-S1-113  
86-S1-114\*\*  
86-S1-115  
86-S1-110MS  
86-S1-110MSD

\*\*Indicates sample underwent EPA Level IV review.

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance data were not provided and therefore not reviewed.

## **III. Initial Calibration**

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **XIV. Field Duplicates**

Samples 86-S1-113 and 86-S1-114\*\* were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1. CTO 86  
**Collection Date:** April 11 through April 12, 2005  
**LDC Report Date:** May 23, 2005  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc./Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** 05D061/K2502714

**Sample Identification**

86-S1-110  
86-S1-112  
86-S1-113  
86-S1-114\*\*  
80-S1-115  
86-S1-110MS  
86-S1-110MSD  
86-S1-110DUP

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B and 7000 and EPA Method 200.8 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

| Method Blank ID | Analyte                                                                    | Maximum Concentration                                                                      | Associated Samples                                 |
|-----------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------|
| PB (prep blank) | Beryllium<br>Copper<br>Nickel<br>Selenium<br>Thallium<br>Zinc              | 0.00009 ug/L<br>0.0010 ug/L<br>0.031 ug/L<br>0.74 ug/L<br>0.00027 ug/L<br>0.006 ug/L       | All samples in SDG 05D061/K2502714                 |
| ICB/CCB         | Antimony                                                                   | 0.012 ug/L                                                                                 | 86-S1-110                                          |
| ICB/CCB         | Beryllium<br>Cadmium<br>Cobalt<br>Nickel<br>Selenium<br>Silver<br>Thallium | 0.02 ug/L<br>0.02 ug/L<br>0.0050 ug/L<br>0.495 ug/L<br>0.28 ug/L<br>0.01 ug/L<br>0.05 ug/L | 86-S1-110<br>86-S1-112                             |
| ICB/CCB         | Antimony                                                                   | 0.014 ug/L                                                                                 | 86-S1-112<br>86-S1-113<br>86-S1-114**<br>86-S1-115 |

| Method Blank ID | Analyte                                                                                                 | Maximum Concentration                                                                                                                            | Associated Samples                    |
|-----------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| ICB/CCB         | Arsenic<br>Beryllium<br>Cadmium<br>Chromium<br>Cobalt<br>Copper<br>Nickel<br>Silver<br>Thallium<br>Zinc | 0.097 ug/L<br>0.00990 ug/L<br>0.0108 ug/L<br>0.207 ug/L<br>0.0138 ug/L<br>0.0205 ug/L<br>0.022 ug/L<br>0.0150 ug/L<br>0.02500 ug/L<br>0.035 ug/L | 86-S1-113<br>86-S1-114**<br>86-S1-115 |

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

| Sample      | Analyte                                       | Reported Concentration                                  | Modified Final Concentration                                |
|-------------|-----------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------|
| 86-S1-110   | Antimony<br>Beryllium<br>Selenium             | 0.382 ug/L<br>0.00366 ug/L<br>0.48 ug/L                 | 0.382U ug/L<br>0.00366U ug/L<br>0.48U ug/L                  |
| 86-S1-112   | Antimony<br>Beryllium<br>Selenium<br>Thallium | 0.296 ug/L<br>0.00479 ug/L<br>0.68 ug/L<br>0.00289 ug/L | 0.296U ug/L<br>0.00479U ug/L<br>0.68U ug/L<br>0.00289U ug/L |
| 86-S1-113   | Antimony<br>Beryllium<br>Selenium<br>Silver   | 0.300 ug/L<br>0.00216 ug/L<br>0.46 ug/L<br>0.0027 ug/L  | 0.300U ug/L<br>0.00216U ug/L<br>0.46U ug/L<br>0.0027U ug/L  |
| 86-S1-114** | Antimony<br>Beryllium<br>Selenium<br>Silver   | 0.0306 ug/L<br>0.00121 ug/L<br>0.52 ug/L<br>0.0029 ug/L | 0.0306U ug/L<br>0.00121U ug/L<br>0.52U ug/L<br>0.0029U ug/L |
| 86-S1-115   | Antimony<br>Selenium<br>Silver                | 0.414 ug/L<br>0.84 ug/L<br>0.0017 ug/L                  | 0.414U ug/L<br>0.84U ug/L<br>0.0017U ug/L                   |

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

| Method Blank ID | Analyte                                                                                                 | Maximum Concentration                                                                                                                            | Associated Samples                    |
|-----------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| ICB/CCB         | Arsenic<br>Beryllium<br>Cadmium<br>Chromium<br>Cobalt<br>Copper<br>Nickel<br>Silver<br>Thallium<br>Zinc | 0.097 ug/L<br>0.00990 ug/L<br>0.0106 ug/L<br>0.207 ug/L<br>0.0138 ug/L<br>0.0205 ug/L<br>0.022 ug/L<br>0.0150 ug/L<br>0.02500 ug/L<br>0.035 ug/L | 86-S1-113<br>86-S1-114**<br>86-S1-115 |

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

| Sample      | Analyte                                       | Reported Concentration                                  | Modified Final Concentration                                |
|-------------|-----------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------|
| 86-S1-110   | Antimony<br>Beryllium<br>Selenium             | 0.382 ug/L<br>0.00386 ug/L<br>0.48 ug/L                 | 0.382U ug/L<br>0.00386U ug/L<br>0.48U ug/L                  |
| 86-S1-112   | Antimony<br>Beryllium<br>Selenium<br>Thallium | 0.296 ug/L<br>0.00479 ug/L<br>0.68 ug/L<br>0.00288 ug/L | 0.296U ug/L<br>0.00479U ug/L<br>0.68U ug/L<br>0.00288U ug/L |
| 86-S1-113   | Antimony<br>Beryllium<br>Selenium<br>Silver   | 0.300 ug/L<br>0.00218 ug/L<br>0.46 ug/L<br>0.0027 ug/L  | 0.300U ug/L<br>0.00218U ug/L<br>0.46U ug/L<br>0.0027U ug/L  |
| 86-S1-114** | Antimony<br>Beryllium<br>Selenium<br>Silver   | 0.306 ug/L<br>0.00121 ug/L<br>0.52 ug/L<br>0.0029 ug/L  | 0.306U ug/L<br>0.00121U ug/L<br>0.52U ug/L<br>0.0029U ug/L  |
| 86-S1-115   | Antimony<br>Selenium<br>Silver                | 0.414 ug/L<br>0.84 ug/L<br>0.0017 ug/L                  | 0.414U ug/L<br>0.84U ug/L<br>0.0017U ug/L                   |

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met

The criteria for analysis were met.

## V. Matrix Spike Analysis

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

| Spike ID<br>(Associated<br>Samples)                    | Analyte                        | %R (Limits)                               | Flag                                    | A or P |
|--------------------------------------------------------|--------------------------------|-------------------------------------------|-----------------------------------------|--------|
| 86-S1-110MS<br>(All samples in SDG<br>05D061/K2502714) | Arsenic<br>Beryllium<br>Copper | 56 (75-125)<br>69 (75-125)<br>73 (75-125) | J (all detects)<br>UJ (all non-detects) | A      |

## VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits for samples on which a EPA Level IV review was performed with the following exceptions:

| Sample      | Internal Standard | %R (Limits)    | Analyte            | Flag                                                                               | A or P |
|-------------|-------------------|----------------|--------------------|------------------------------------------------------------------------------------|--------|
| 86-S1-114** | Indium-115        | 160.3 (60-125) | Antimony<br>Barium | J (all detects)<br>UJ (all non-detects)<br>J (all detects)<br>UJ (all non-detects) | P      |

Raw data were not evaluated for the samples reviewed by Level III criteria.

## IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for samples reviewed by Level III criteria.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.



## XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

| Sample                             | Analyte  | Finding                                                 | Criteria                                          | Flag | A or P |
|------------------------------------|----------|---------------------------------------------------------|---------------------------------------------------|------|--------|
| All samples in SDG 05D061/K2502714 | Antimony | Laboratory method detection limit reported at 0.12 ug/L | MDL should be reported at 0.05 ug/L per the QAPP. | None | P      |
| All samples in SDG 05D061/K2502714 | Barium   | Laboratory method detection limit reported at 0.60 ug/L | MDL should be reported at 0.05 ug/L per the QAPP. | None | P      |

Raw data were not evaluated for samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## XIII. Field Duplicates

Samples 86-S1-113 and 86-S1-114\*\* were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

| Compound  | Concentration (ug/L) |             | RPD |
|-----------|----------------------|-------------|-----|
|           | 86-S1-113            | 86-S1-114** |     |
| Antimony  | 0.300                | 0.306       | 2   |
| Arsenic   | 1.550                | 1.630       | 5   |
| Barium    | 74.3                 | 73.4        | 1   |
| Beryllium | 0.00216              | 0.00121     | 56  |
| Cadmium   | 0.2700               | 0.2940      | 9   |
| Chromium  | 0.375                | 0.283       | 28  |
| Cobalt    | 4.6700               | 6.3700      | 31  |
| Copper    | 0.5280               | 0.5730      | 8   |
| Lead      | 0.012                | 0.013       | 8   |

| Compound | Concentration (ug/L) |             | RPD |
|----------|----------------------|-------------|-----|
|          | 86-S1-113            | 86-S1-114** |     |
| Nickel   | 87.9                 | 99.0        | 12  |
| Selenium | 0.46                 | 0.52        | 12  |
| Silver   | 0.0027               | 0.0029      | 7   |
| Thallium | 0.02780              | 0.02680     | 4   |
| Zinc     | 13.1                 | 13.2        | 1   |

#### XIV. Field Blanks

No field blanks were identified in this SDG.

**Moffett Air Field, Site 1, CTO 86**

**Metals - Data Qualification Summary - SDG 05D061/K2502714**

| SDG                 | Sample                                                          | Analyte                        | Flag                                                                               | A or P | Reason                     |
|---------------------|-----------------------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------|--------|----------------------------|
| 05D061/<br>K2502714 | 86-S1-110<br>86-S1-112<br>86-S1-113<br>86-S1-114**<br>86-S1-115 | Arsenic<br>Beryllium<br>Copper | J (all detects)<br>UJ (all non-detects)                                            | A      | Matrix spike analysis (%R) |
| 05D061/<br>K2502714 | 86-S1-114**                                                     | Antimony<br><br>Barium         | J (all detects)<br>UJ (all non-detects)<br>J (all detects)<br>UJ (all non-detects) | P      | Internal standards (%R)    |
| 05D061/<br>K2502714 | 86-S1-110<br>86-S1-112<br>86-S1-113<br>86-S1-114**<br>86-S1-115 | Antimony<br>Barium             | None<br>None                                                                       | P      | Sample result verification |

**Moffett Air Field, Site 1, CTO 86**

**Metals - Laboratory Blank Data Qualification Summary - SDG 05D061/K2502714**

| SDG                 | Sample      | Analyte                                       | Modified Final Concentration                                | A or P |
|---------------------|-------------|-----------------------------------------------|-------------------------------------------------------------|--------|
| 05D061/<br>K2502714 | 86-S1-110   | Antimony<br>Beryllium<br>Selenium             | 0.382U ug/L<br>0.00386U ug/L<br>0.48U ug/L                  | A      |
| 05D061/<br>K2502714 | 86-S1-112   | Antimony<br>Beryllium<br>Selenium<br>Thallium | 0.296U ug/L<br>0.00479U ug/L<br>0.68U ug/L<br>0.00288U ug/L | A      |
| 05D061/<br>K2502714 | 86-S1-113   | Antimony<br>Beryllium<br>Selenium<br>Silver   | 0.300U ug/L<br>0.00216U ug/L<br>0.46U ug/L<br>0.0027U ug/L  | A      |
| 05D061/<br>K2502714 | 86-S1-114** | Antimony<br>Beryllium<br>Selenium<br>Silver   | 0.306U ug/L<br>0.00121U ug/L<br>0.52U ug/L<br>0.0029U ug/L  | A      |
| 05D061/<br>K2502714 | 86-S1-115   | Antimony<br>Selenium<br>Silver                | 0.414U ug/L<br>0.84U ug/L<br>0.0017U ug/L                   | A      |

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **XIV. Field Duplicates**

Samples 86-S1-113 and 86-S1-114\*\* were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.



NUMBER 10351

## CHAIN-OF-CUSTODY RECORD

[illegible]

White - Laboratory; Pink - Laboratory; Canary - Protect File; Manila - Data Management!


**LABORATORIES, INC.**

 1010 W. 20th Street  
 Torrance, CA 90501

TEL: (310) 415-2889

FAX: (310) 415-0219

 DATE: 05-09-2005  
 EMAX Ref: 050053

Attn: Lynn Jefferson

 Terra Tech, Inc.  
 1740 F. Davis Ave., Suite 200  
 Santa Ana, CA 92705

 Subject: Laboratory Report  
 Project: MFA, Site 1, CTO 86

 Enclosed is the Laboratory report for Samples received on  
 04/12/05. The data reported include:

| Sample ID  | Control # | Col. Date | Matrix | Analysis                                                                                                                                                                                                                                                                                                                                           |
|------------|-----------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 56-M1 (2)  | D05-01    | 04/11/05  | WATER  | VOLATILE ORGANICS BY GC/MS<br>VOLATILE ORGANICS BY GC/MS<br>PESTICIDES, ORGANOPHOSPHORIC<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>DISSOLVED PLANT<br>NITROGEN DIOXIDE<br>SEMIVOLATILE ORGANICS BY GC/MS<br>PESTICIDES, ORGANOPHOSPHORIC<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>DISSOLVED METALS<br>MERCURY DIOXIDE<br>SEMIVOLATILE ORGANICS BY GC/MS |
| 56-M1 (10) | D05-02    | 04/11/05  | WATER  |                                                                                                                                                                                                                                                                                                                                                    |
| 56-S1-1/2  | D05-01    | 04/11/05  | WATER  |                                                                                                                                                                                                                                                                                                                                                    |

Notes: Dissolved Metals was submitted to Columbia Analytical Services, Inc.

The results are summarized on the following pages:

 Please feel free to call if you have any questions concerning  
 these results.

Sincerely yours,

 Dr. T. Fong, Ph.D.  
 Laboratory Director

CASE NARRATIVE

CLIENT: TETRA TECH FW, INC.  
PROJECT: MFA SITE 1, CTO 86  
SDG: 35D053

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

Three (3) water samples were received on 04/12/05 for Volatile Organic analysis by Method 5030B/8260B in accordance with USEPA SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. Method Blank

Method blank was free of contamination at the reporting time.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SM 50308/82608  
VOLATILE ORGANICS L7 GC/MS

|                |                     |                    |                |
|----------------|---------------------|--------------------|----------------|
| Client:        | TEHRA TECH Fw, INC. | Date Collected:    | 04/11/05       |
| Project:       | MFA SITE 1, 2 & 3   | Date Received:     | 04/12/05       |
| Watch No:      | 590053              | Date Entered:      | 04/15/05 08:11 |
| Sample ID:     | 06-S1-121           | Date Analyzed:     | 04/15/05 04:17 |
| Lab Sample ID: | ACS53-C             | Detector Response: |                |
| Lab File ID:   | AC053C              | Matrix:            | 45/EN          |
| Lab Batch ID:  | 067026              | 4-Methoxy:         | 45             |
| Lab Ref.:      | NCR892              | Improver ID:       | 1067           |

[illegible]

| SUBSTITUTE PARAMETERS | RESTARTS | GC LIMIT |
|-----------------------|----------|----------|
| %Z-DIOL (NO. HMD/DL)  | 80       | 67-100   |
| COLUMN #01            | 100      | 75-155   |
| DWDRIFT (LARGE SIZE)  | 150      | 75-175   |

```

5 1. 2 Reporting (info)
6 Out of CC
7 Succeeded call to driver: none
8 Found in associated server: none
9 Value between 0.00 and 100
10 Value from physical appliance

```





2066

**CASE NARRATIVE**

CLIENT: TETRA TECH EMI  
PROJECT: MFA, SITE 1, CTO 86  
SDG: GSD953

**SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS**

Two (2) water samples were received on 04/12/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Tuning and Calibration**

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

Recoveries were within QC limit.

**6. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All clients' work met.



SI 7320C, 7270C  
ST411 2001 11 15 09:04:10C BY JC/MS

```
Client : ETNA TECH 2nd. Inc.      Date Collected: 04/17/05
Project : HFA, SIFF 1, 610 Rn    Date Received: 04/12/05
Enter No. : CSD093               Date Extracted: 04/16/05 13:00
Sample ID : 06-31-109            Date Analyzed: 04/19/05 15:30
Lab Supp. : JMS-3               DUTY Free Factor: 2
Job File : J04113               DUTY Free Factor: 2
Ext Path ID: J040164            Moisture : 34
Caltn, Ref.: RCR34              Instrument ID : 7-043
```

[illegible][illegible]

| Year | Region | Age   | Gender | Study        | Findings                                |
|------|--------|-------|--------|--------------|-----------------------------------------|
| 1998 | Spain  | 14-17 | Male   | Longitudinal | High prevalence of smoking and drinking |
| 2000 | Spain  | 14-17 | Male   | Longitudinal | High prevalence of smoking and drinking |
| 2002 | Spain  | 14-17 | Male   | Longitudinal | High prevalence of smoking and drinking |
| 2004 | Spain  | 14-17 | Male   | Longitudinal | High prevalence of smoking and drinking |
| 2006 | Spain  | 14-17 | Male   | Longitudinal | High prevalence of smoking and drinking |
| 2008 | Spain  | 14-17 | Male   | Longitudinal | High prevalence of smoking and drinking |
| 2010 | Spain  | 14-17 | Male   | Longitudinal | High prevalence of smoking and drinking |
| 2012 | Spain  | 14-17 | Male   | Longitudinal | High prevalence of smoking and drinking |
| 2014 | Spain  | 14-17 | Male   | Longitudinal | High prevalence of smoking and drinking |
| 2016 | Spain  | 14-17 | Male   | Longitudinal | High prevalence of smoking and drinking |
| 2018 | Spain  | 14-17 | Male   | Longitudinal | High prevalence of smoking and drinking |
| 2020 | Spain  | 14-17 | Male   | Longitudinal | High prevalence of smoking and drinking |

# CASE NARRATIVE

CLIENT: TETRA TECH PW, INC.  
 PROJECT: MFA, SITE 1, CTO 86  
 SDG: 95D053

## SV3520C/8081A PESTICIDES

Two (2) water samples were received on 04/12/05 for Pesticides Analysis by Method 3520C/8081A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

### 1. Holding Time

Analytical holding time was met.

### 2. Instrument Performance and Calibration

Initial calibration was at five-point for Pesticides; all RSDs were within 20%. All continuous calibrations were analyzed at 12 hour interval and mean recoveries were within 85-115%. Endrin and DDT breakdown were within QC limits.

### 3. Method Blank

Method blank was free of contamination at the reporting limit.

### 4. Surrogate Recovery

Recoveries were within QC limit.

### 5. Lab Control Sample/Lab Control Sample Duplication

All recoveries were within QC limits.

### 6. Matrix Spike/Matrix Spike Duplication

No MS/MSD sample was designated in this SDG.

### 7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All data were met.

When duplicate results are confirmed by a second counting, the relative percentage difference (RPD) between the two results is calculated. If RPD is less than 20%, and no evidence of chromatographic problems, the higher result is reported. If RPD is greater than 40%, the chromatogram is checked for anomalies, and results are selected based on the best professional judgement. If no evidence of any chromatographic problems, the higher result is reported.

8435202/8081A  
FESTIVAL

```

Client       : WPTA TECH Pk. INC.
Project     : WPTA 310E 1, CTA 62
Batch No.   : 21000000
Sample      : 02-26-10E
Lab Name    : 06033-02
Lab File ID : 00180150A
Est From ID : 0540102
Title Rev.  : 00180050A
Date Collected: 06/11/02
Date Received: 06/11/02
Date Analyzed: 06/11/02 13:00
Date Reported: 06/18/02 15:38
Microchem. Program : 0018
Matrix      : OTHER
S. Structure : 000
Inert solvent : 000008

```

| PARAMETERS           | REFUL 19 |        | HDC     |        |       |
|----------------------|----------|--------|---------|--------|-------|
|                      | 1992/73  | 2007/2 | 1992/73 | 2007/2 |       |
| ALPHA-HBC            | (ND)     | (ND)   | 0.57    | 0.004  | 0.004 |
| ALPHA-HBC (1,4-EPHE) | (ND)     | (ND)   | 0.47    | 0.006  | 0.006 |
| BETA-HBC             | (ND)     | (ND)   | 0.67    | 0.004  | 0.004 |
| MEF-TACH-HBC         | (ND)     | (ND)   | 0.57    | 0.004  | 0.004 |
| BETA-4-EPH           | (ND)     | (ND)   | 0.47    | 0.004  | 0.004 |
| FLUOR                | (ND)     | (ND)   | 0.47    | 0.006  | 0.006 |
| HEPTACHLOR-HEXACHLOR | (ND)     | (ND)   | 0.47    | 0.006  | 0.006 |
| ALPHA-CHLORODIBENZO  | (ND)     | (ND)   | 0.67    | 0.004  | 0.004 |
| ALPHA-CHLORODIBENZO  | (ND)     | (ND)   | 0.67    | 0.004  | 0.004 |
| NONACHLOR-1          | (ND)     | (ND)   | 0.67    | 0.028  | 0.028 |
| CHLOR                | (ND)     | (ND)   | 0.06    | 0.06   | 0.06  |
| HEXACHLOR            | (ND)     | (ND)   | 0.10    | 0.004  | 0.004 |
| ENDRIN               | (ND)     | (ND)   | 0.09    | 0.15   | 0.15  |
| CHLOR                | (ND)     | (ND)   | 0.09    | 0.28   | 0.08  |
| ENDRIN-FAR [1]       | (ND)     | (ND)   | 0.09    | 0.10   | 0.10  |
| CHLOR DET            | (ND)     | (ND)   | 0.09    | 0.10   | 0.10  |
| ENDRIN ALIPHATIC     | (ND)     | (ND)   | 0.04    | 0.004  | 0.004 |
| NONACHLOR-1 AND 2    | (ND)     | (ND)   | 0.04    | 0.15   | 0.15  |
| ENDRIN-1,4-EPH       | (ND)     | (ND)   | 0.47    | 0.07   | 0.15  |
| HEPTACHLOR           | (ND)     | (ND)   | 0.47    | 0.06   | 0.06  |
| ENDRIN               | (ND)     | (ND)   | 0.10    | 0.07   | 0.10  |

| PROCESS PARAMETERS  | % RECOVERY | 90 LIFE |
|---------------------|------------|---------|
| TECHACHLORO-MAX-ONE | 26-35      | 30-150  |
| 95 GACHLO-BITREX-95 | (30-38)    | 30-150  |

10. 2. Reporting time  
 Link set 1 is related to first column ; right set 1 related to second column  
 2. 3. Independent and reported column





# CASE NARRATIVE

CLIENT: TETRA TECH FW, INC.  
 PROJECT: MFA, SITE 1, CTO 88  
 SDG: 05D053

## SW3520C/8082 PCBs

Two (2) water samples were received on 04/12/05 for PCBs analysis by Method 3520C/8082 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

### 1. Holding Time

Analytical holding time was met.

### 2. Instrument Performance and Calibration

Initial calibration was five points for PCBs 1016 and PCBs 1260. All RSDs were within 20%. All continue calibrations were analyzed at 12 hour interval and all recoveries were within 95-115%.

### 3. Method Blank

Method blank was free of contamination at the reporting limit.

### 4. Surrogate Recovery

Recoveries were within QC limit.

### 5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

### 6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

### 7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

1429202/0002  
FILE

```

*****
CLIENT:      1  TELRA TECH PD, INC.      Date Collected: 04/11/05
PRG/VER:     1  MFA, SITE-1, ETS-BW      Date Recv'd: 04/12/05
Batch No.:    1  046005                   Date Extracted: 04/14/05 13:00
Sample ID:    1  65-61-105                Date Analyzed: 04/18/05 13:22
Lab Name ID:  1  0033-02                   Dilution Factor: .96
Lab File ID:  1  00180104                  Matrix: .0015
Est. End ID:  1  00081204                  % Moisture: .06
Coll. Ref.:   1  00180004                  Incubation Hr: .007000
*****

```

| PARAMETERS         | DEPLET    | RE      | RE       |
|--------------------|-----------|---------|----------|
|                    | (ug/l)    | (ug/l)  | (ug/l)   |
| PCB-1016           | (ND) [RE] | .96     | [RE] .24 |
| PCB-1221           | (ND) [RE] | .96     | [RE] .24 |
| PCB-1232           | (ND) [RE] | .96     | [RE] .24 |
| PCB-1362           | (ND) [RE] | .96     | [RE] .24 |
| PCB-1248           | (ND) [RE] | .96     | [RE] .24 |
| PCB-1254           | (ND) [RE] | .96     | [RE] .24 |
| PCB-1346           | (ND) [RE] | .96     | [RE] .24 |
| SUMMARY PARAMETERS |           |         |          |
| RECOVERY           | 77% [RE]  | CC [RE] |          |
| RECOVERY           | 77% [RE]  | 20-137  |          |
| RECOVERY           | 77% [RE]  | 20-150  |          |

RE: Reporting Limit

Left of 1 is added in first column; Right of 1 is added in second column

1 = included the reported values

\* Not a RE of all tests

**R052007/0002**

**PCB**

```

=====
Q: Unit      : 17878A 120W FW, INC.      Date: Collection: 05/11/05
Project      : MFA, SITE 1, 178 86      Date: Receipt: 06/12/05
Vendor Ref.  : 050035                    Date: Extraction: 04/14/07 15:00
Sample ID    : 05-81-100                 Date Analyzed: 06/19/07 16:00
Lab Sample ID: D057-03                    Dilution Factor: .95
Lab File ID: 00100112                     Matrix      : WETG
Est. Price ID: 00000000                     Moisture    : 48
Dilution, Ref.: 00100000A                 Lab Sample ID: 0010000
=====

```

| PARAMETERS | RESULTS<br>Conc/L | RL     |             |
|------------|-------------------|--------|-------------|
|            |                   | Conc/L | Conc/L      |
| PCB-1010   | (ND) (0)          | .95    | (.95) (.95) |
| PCB-1021   | (ND) (0)          | .95    | (.95) (.95) |
| PCB-1257   | (ND) (0)          | .95    | (.95) (.95) |
| PCB-1267   | (ND) (0)          | .95    | (.95) (.95) |
| PCB-1545   | (ND) (0)          | .95    | (.95) (.95) |
| PCB-1254   | (ND) (0)          | .95    | (.95) (.95) |
| PCB-1550   | (ND) (0)          | .95    | (.95) (.95) |

| SURrogate PARAMETERS                                                                                                                                                                                                                                                                                | ± RESIDUAL | RL LIMIT |        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------|--------|
|                                                                                                                                                                                                                                                                                                     |            | Conc/L   | Conc/L |
| 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100 | (.05) (7)  | 50-100   |        |
| DECAChloroBIPhenyl                                                                                                                                                                                                                                                                                  | (.02) (7)  | 50-100   |        |

RL: Reporting Limit  
 ( ) : Is referred to limit value ; Right of : related to second column  
 ( ) : includes the observed values  
 - out side of RL limit

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, STIE 1, CTO 86

**SDG:** 05D053

**METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR**

Two (2) water samples were received on 04/12/05 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods". SW846, 3<sup>rd</sup> edition.

**1. Holding Time**

Analysis met holding time criteria.

**2. Method Blank**

Method blank was free of contamination at the reporting limit.

**3. Lab Control Sample/Lab Control Sample Duplicate**

Lab control results were within QC limit.

**4. Serial Dilution / Post-Analytical Spike**

Sample D061-02 from another SDG was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

**5. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**6. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Samples were analyzed at DF 20 due to matrix interference.

11/1/07 = 1594 TDR to 14L  
 overcast = 840, 610 = 1200 no  
 watch out = 1200

217

[illegible]

## Abstract

## COLUMBIA ANALYTICAL SERVICES, INC.

 Client: EMAX Laboratories, Inc.  
 Project: Mollen Site  
 Sample Matrix: Water

 Service Request No.: K350774  
 Date Received: 4/14/15/05

**CASE NARRATIVE**

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

**Sample Receipt**

Twelve water samples were received for analysis at Columbia Analytical Services between 4/14/15/05. No discrepancies were noted upon initial sample inspection. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

**Metals**
**Sample Notes and Discussion:**

Due to the high salinity of sample matrix, pH samples required pre-treatment using reductive precipitation prior to analysis by ICP/MS EPA 200.8. Analysis of Selenium was performed by hydride EPA 7762 due to the saline sample matrix.

**Matrix Spike Recovery Exceedences:**

The matrix spike recoveries of Arsenic (56%), Barium (68%), and Copper (73%) for sample 06-51-170 were outside the project specified control criteria of 70-125%. All the recoveries were within the CAS internally derived limits for the reductive precipitation procedure (As 50-145%, Ba 50-120% and Cu 30-120%). Based on the CAS statistical control limits, the recoveries observed are in the range expected for this procedure. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicates the analytical batch was in control. No further corrective action was appropriate.

The control criteria for matrix spike recoveries of Cadmium and Nickel for sample 06-51-170 are not applicable. The analyte concentration in the sample was statistically higher than the spiked spike concentration, preventing accurate evaluation of the spike recovery.

No other anomalies associated with the analysis of these samples were observed.

Approved by:



Date:



**Columbia Analytical Services**
**DISSOLVED METALS**

-1-

**INORGANIC ANALYSIS DATA SHEET**

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected: 04/11/05

Project Name: Hoffett Site 3

Date Received: 04/14/05

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-EI-103

Lab Code: K2502714-001 DISS

| Analyte   | Analysis Method | MR      | MDL     | Dil. | Date Extracted | Date Analyzed | Result  | C | Q |
|-----------|-----------------|---------|---------|------|----------------|---------------|---------|---|---|
| Aluminum  | 6010B           | 50      | 50      | 1    | 4/21/05        | 4/25/05       | 50      | 0 |   |
| Antimony  | 200.6           | 1.006   | 0.120   | 1    | 4/21/05        | 4/25/05       | 0.398   | B |   |
| Arsenic   | 200.8           | 0.555   | 0.062   | 1    | 4/28/05        | 4/28/05       | 0.954   |   | W |
| Barium    | 200.8           | 1.00    | 0.60    | 1    | 4/21/05        | 4/25/05       | 73.3    |   |   |
| Beryllium | 200.8           | 0.02200 | 0.00009 | 1    | 4/28/05        | 4/29/05       | 0.00426 | # | W |
| Cadmium   | 200.8           | 0.0222  | 0.0003  | 1    | 4/28/05        | 4/29/05       | 0.4120  |   |   |
| Chromium  | 200.8           | 0.222   | 0.002   | 1    | 4/28/05        | 4/29/05       | 0.053   | B |   |
| Cobalt    | 200.8           | 0.0222  | 0.0002  | 1    | 4/28/05        | 4/29/05       | 13.5    |   |   |
| Copper    | 200.8           | 0.1110  | 0.0009  | 1    | 4/28/05        | 4/29/05       | 0.6020  |   | W |
| Lead      | 200.8           | 0.022   | 0.001   | 1    | 4/28/05        | 4/29/05       | 0.127   |   |   |
| Nickel    | 200.8           | 0.222   | 0.002   | 1    | 4/28/05        | 4/29/05       | 22.3    |   |   |
| Selenium  | 7142            | 1.00    | 0.30    | 2    | 4/21/05        | 5/2/05        | 0.46    | # |   |
| Silver    | 200.8           | 0.0222  | 0.0006  | 1    | 4/28/05        | 4/29/05       | 0.1920  |   |   |
| Thallium  | 200.8           | 0.02230 | 0.00037 | 1    | 4/28/05        | 4/29/05       | 0.00250 |   |   |
| Vanadium  | 5010B           | 10.0    | 6.0     | 1    | 4/21/05        | 4/25/05       | 6.6     | 0 |   |
| Zinc      | 200.8           | 0.555   | 0.002   | 1    | 4/28/05        | 4/29/05       | 0.270   |   |   |

% Solids: 0.0

Comments:

## Columbia Analytical Services

 DISSOLVED METALS  
 -1-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2302714

Project No.: NA

Date Collected: 04/11/05

Project Name: Norfoll Site 1

Date Received: 04/14/05

Matrix: WATER

Units: µg/l

Basis: BA

Sample Name: 86-S1-109

Lab Code: K2302714-002 DISS

| Analyte   | Analysis Method | MRL    | MDL     | Dil. | Date Extracted | Date Analyzed | Result  | C | Q |
|-----------|-----------------|--------|---------|------|----------------|---------------|---------|---|---|
| Aluminum  | 6010P           | 50     | 50      | 1    | 4/21/05        | 4/25/05       | 50      | U |   |
| Antimony  | 200.8           | 1.000  | 0.120   | 1    | 4/21/05        | 4/25/05       | 0.104   | B |   |
| Arsenic   | 200.6           | 0.556  | 0.002   | 1    | 4/28/05        | 4/29/05       | 0.610   | E |   |
| Barium    | 200.8           | 1.00   | 0.60    | 1    | 4/21/05        | 4/25/05       | 145     |   |   |
| Beryllium | 200.6           | 0.0220 | 0.00009 | 1    | 4/28/05        | 4/29/05       | 0.00005 | B | N |
| Cadmium   | 200.8           | 0.022  | 0.0005  | 1    | 4/28/05        | 4/29/05       | 0.0025  | N |   |
| Chromium  | 200.8           | 0.222  | 0.002   | 1    | 4/28/05        | 4/29/05       | 0.013   |   |   |
| Cobalt    | 200.9           | 0.0222 | 0.0002  | 1    | 4/28/05        | 4/29/05       | 1.5100  |   |   |
| Copper    | 200.8           | 0.1110 | 0.0009  | 1    | 4/28/05        | 4/29/05       | 0.2050  | B |   |
| Lead      | 200.8           | 0.022  | 0.001   | 1    | 4/28/05        | 4/29/05       | 0.020   | E |   |
| Nickel    | 200.9           | 0.222  | 0.002   | 1    | 4/28/05        | 4/29/05       | 8.230   |   |   |
| Selenium  | 7742            | 1.00   | 0.30    | 2    | 4/21/05        | 4/25/05       | 0.46    | B |   |
| Silver    | 200.8           | 0.0222 | 0.0006  | 1    | 4/28/05        | 4/29/05       | 0.0013  | B |   |
| Thallium  | 200.6           | 0.0220 | 0.00007 | 1    | 4/28/05        | 4/29/05       | 0.0020  | B |   |
| Vanadium  | 6610B           | 10.0   | 6.0     | 1    | 4/21/05        | 4/25/05       | 6.0     | N |   |
| Zinc      | 200.8           | 0.556  | 0.002   | 1    | 4/28/05        | 4/29/05       | 0.013   |   |   |

2 Solids: 0.0

Comments:



## Columbia Analytical Services

 DISSOLVED METALS  
 -1-  
 INORGANIC ANALYSIS DATA SHEET

 Client: EMAX Laboratories, Inc.  
 Project No.: NA  
 Project Name: Moffett Site 1  
 Matrix: WATER

 Service Request: K2502714  
 Date Collected: 04/11/05  
 Date Received: 04/14/05  
 Units: UG/L  
 Basis: NA

Sample Name: 86-S1-110

Lab Code: K2502714-003 DISS

| Analyte   | Analysis Method | MRL    | MDL    | Dil. | Date Extracted | Date Analyzed | Result  | C | Q |
|-----------|-----------------|--------|--------|------|----------------|---------------|---------|---|---|
| Aluminum  | 6010B           | 50     | 50     | 1    | 4/21/05        | 4/25/05       | 50      | U |   |
| Antimony  | 200.8           | 1.000  | 0.120  | 1    | 4/21/05        | 4/25/05       | 0.382   | B |   |
| Arsenic   | 200.8           | 0.558  | 0.002  | 1    | 4/26/05        | 4/29/05       | 2.200   | B |   |
| Barium    | 200.8           | 1.00   | 0.50   | 1    | 4/21/05        | 4/25/05       | 83.8    |   |   |
| Beryllium | 200.8           | 0.0220 | 0.0009 | 1    | 4/25/05        | 4/29/05       | 0.00386 | B | F |
| Cadmium   | 200.6           | 0.0222 | 0.0063 | 1    | 4/25/05        | 4/29/05       | 0.4770  |   |   |
| Chromium  | 200.8           | 0.222  | 0.002  | 1    | 4/28/05        | 4/29/05       | 0.203   | B |   |
| Cobalt    | 200.8           | 0.0222 | 0.0002 | 1    | 4/23/05        | 4/29/05       | 3.9300  |   |   |
| Copper    | 200.8           | 0.110  | 0.009  | 1    | 4/24/05        | 4/29/05       | 0.0140  | B |   |
| Lead      | 200.8           | 0.022  | 0.001  | 1    | 4/23/05        | 4/29/05       | 0.042   |   |   |
| Nickel    | 200.9           | 0.122  | 0.002  | 1    | 4/23/05        | 4/29/05       | 12.7    |   |   |
| Selenium  | 7742            | 1.00   | 0.30   | 2    | 4/21/05        | 5/2/05        | 0.48    | B |   |
| Silver    | 200.8           | 0.0229 | 0.0005 | 1    | 4/28/05        | 4/29/05       | 0.0273  |   |   |
| Thallium  | 200.8           | 0.0229 | 0.0007 | 1    | 4/28/05        | 4/29/05       | 0.07190 |   |   |
| Vanadium  | 8010R           | 10.0   | 0.0    | 1    | 4/21/05        | 4/25/05       | 5.011   |   |   |
| Zinc      | 200.8           | 0.556  | 0.002  | 1    | 4/28/05        | 4/29/05       | 2.520   |   |   |

% Solids: 0.2

Comments:

**Columbia Analytical Services**

 DISSOLVED METALS  
 -1-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected: 04/11/05

Project Name: Moffett Site J

Date Received: 04/14/05

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-51-112

Lab Code: K2502714-004 DISS

| Analyte   | Analysis Method | MRL     | MDL     | Dil. | Date Extracted | Date Analyzed | Result  | C | Q |
|-----------|-----------------|---------|---------|------|----------------|---------------|---------|---|---|
| Aluminum  | 60108           | 50      | 50      | 1    | 4/21/05        | 4/25/05       | 50      | U |   |
| Antimony  | 200.9           | 1.000   | 0.120   | 1    | 4/21/05        | 4/25/05       | 0.296   | S |   |
| Arsenic   | 200.9           | 0.556   | 0.002   | 1    | 4/28/05        | 4/29/05       | 4.540   | N |   |
| Barium    | 200.9           | 1.00    | 0.60    | 1    | 4/21/05        | 4/25/05       | 184     |   |   |
| Beryllium | 200.9           | 0.02220 | 0.00009 | 1    | 4/28/05        | 4/29/05       | 0.00479 | S | N |
| Cadmium   | 200.9           | 0.0222  | 0.0003  | 1    | 4/26/05        | 4/29/05       | 0.0122  | E |   |
| Chromium  | 200.9           | 9.222   | 0.002   | 1    | 4/28/05        | 4/29/05       | 0.530   |   |   |
| Cobalt    | 200.9           | 0.0222  | 0.0002  | 1    | 4/28/05        | 4/29/05       | 6.0100  |   |   |
| Copper    | 200.9           | 0.1110  | 0.0009  | 1    | 4/28/05        | 4/29/05       | 0.2250  | N |   |
| Lead      | 200.9           | 0.022   | 0.001   | 1    | 4/28/05        | 4/29/05       | 0.037   |   |   |
| Nickel    | 200.9           | 0.022   | 0.002   | 1    | 4/28/05        | 4/29/05       | 7.080   |   |   |
| Selenium  | 7740            | 1.00    | 0.30    | 2    | 4/21/05        | 5/2/05        | 0.69    | A |   |
| Silver    | 200.9           | 0.0222  | 0.0006  | 1    | 4/28/05        | 4/29/05       | 0.0242  |   |   |
| Thallium  | 200.9           | 0.02220 | 0.00007 | 1    | 4/28/05        | 4/29/05       | 0.00288 | E |   |
| Vanadium  | 60108           | 10.0    | 5.0     | 1    | 4/21/05        | 4/25/05       | 6.13    | N |   |
| Zinc      | 200.9           | 0.556   | 0.007   | 1    | 4/28/05        | 4/29/05       | 1.340   |   |   |

% added: 9.4

COMMENTS:

## Columbia Analytical Services

 DISSOLVED METALS  
 -I-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected: 04/11/05

Project Name: Moffatt Site 1

Date Received: 04/14/05

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-61-113

Lab Code: K2502714-905 DISS

| Analyte   | Analysis Method | MRL     | MDL     | Dil | Date Extracted | Date Analyzed | Result  | C | Q |
|-----------|-----------------|---------|---------|-----|----------------|---------------|---------|---|---|
| Aluminum  | 6010B           | 50      | 50      | 1   | 4/21/05        | 4/25/05       | 50      | U |   |
| Antimony  | 200.8           | 1.000   | 0.120   | 1   | 4/21/05        | 4/25/05       | 0.300   | B |   |
| Arsenic   | 200.8           | 0.556   | 0.002   | 1   | 4/28/05        | 4/29/05       | 0.556   | N |   |
| Barium    | 200.8           | 1.00    | 0.60    | 1   | 4/21/05        | 4/25/05       | 74.3    |   |   |
| Beryllium | 200.8           | 0.02220 | 0.00009 | 1   | 4/28/05        | 4/29/05       | 0.00216 | B | N |
| Cadmium   | 200.8           | 0.0222  | 0.0003  | 1   | 4/28/05        | 4/29/05       | 0.2700  |   |   |
| Chromium  | 200.8           | 0.222   | 0.002   | 1   | 4/28/05        | 4/29/05       | 0.375   |   |   |
| Cobalt    | 200.8           | 0.0222  | 0.0002  | 1   | 4/28/05        | 4/29/05       | 4.5700  |   |   |
| Copper    | 200.8           | 0.1110  | 0.0039  | 1   | 4/28/05        | 4/29/05       | 0.5200  | B |   |
| Lead      | 200.8           | 0.022   | 0.001   | 1   | 4/28/05        | 4/29/05       | 0.012   | B |   |
| Nickel    | 200.8           | 2.220   | 0.022   | 10  | 4/28/05        | 4/29/05       | 97.6    |   |   |
| Selenium  | 7742            | 1.00    | 0.30    | 2   | 4/21/05        | 5/2/05        | 0.46    | B |   |
| Silver    | 200.8           | 0.0222  | 0.0006  | 1   | 4/28/05        | 4/29/05       | 0.0027  | B |   |
| Thallium  | 200.8           | 0.02220 | 0.00007 | 1   | 4/28/05        | 4/29/05       | 0.02700 |   |   |
| Sodium    | 6010B           | 10.0    | 6.0     | 1   | 4/21/05        | 4/25/05       | 6.0     | U |   |
| Zinc      | 200.8           | 0.556   | 0.002   | 1   | 4/28/05        | 4/29/05       | 13.1    |   |   |

# Solids: 0.0

Comments:

## Columbia Analytical Services

 DISSOLVED METALS  
 -1-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2502114

Project No.: NA

Date Collected: 04/11/05

Project Name: Wolfelt Site 7

Date Received: 04/14/05

Analyte: WATER

Units: µg/L

Basis: NA

Sample Name: 06-SJ-114

Lab Code: K2502114-006 DISS

| Analyte   | Analysis Method | MRL    | MDL     | File | Date Extracted | Date Analyzed | Result  | C | Q |
|-----------|-----------------|--------|---------|------|----------------|---------------|---------|---|---|
| Aluminum  | 5010B           | 50     | 50      | 1    | 4/21/05        | 4/25/05       | 50      | Y |   |
| Antimony  | 200.8           | 1.000  | 0.136   | 3    | 4/21/05        | 4/25/05       | 0.305   | B |   |
| Arsenic   | 200.3           | 0.556  | 0.062   | 3    | 4/28/05        | 4/29/05       | 1.620   | N |   |
| Barium    | 200.8           | 1.30   | 0.40    | 1    | 4/21/05        | 4/25/05       | 73.4    |   |   |
| Beryllium | 200.8           | 0.0222 | 0.0003  | 1    | 4/28/05        | 4/29/05       | 0.00121 | N |   |
| Cadmium   | 200.8           | 0.0222 | 0.0003  | 1    | 4/28/05        | 4/29/05       | 0.2940  |   |   |
| Chromium  | 200.8           | 0.227  | 0.002   | 1    | 4/29/05        | 4/29/05       | 0.263   |   |   |
| Cobalt    | 200.8           | 0.0222 | 0.0002  | 1    | 4/29/05        | 4/29/05       | 6.3700  |   |   |
| Copper    | 200.8           | 0.1110 | 0.0003  | 1    | 4/28/05        | 4/29/05       | 0.5730  | N |   |
| Lead      | 200.8           | 0.022  | 0.001   | 1    | 4/28/05        | 4/28/05       | 0.012   | B |   |
| Nickel    | 200.8           | 2.220  | 0.022   | 10   | 4/28/05        | 4/28/05       | 99.0    |   |   |
| Selenium  | 7742            | 1.00   | 0.30    | 2    | 4/21/05        | 3/2/05        | 0.52    | B |   |
| Silver    | 200.8           | 0.0222 | 0.0006  | 1    | 4/28/05        | 4/29/05       | 0.0029  | B |   |
| Thallium  | 200.8           | 0.0222 | 0.00037 | 0    | 4/28/05        | 4/29/05       | 0.0260  |   |   |
| Vanadium  | 5070B           | 10.0   | 5.0     | 3    | 4/21/05        | 4/25/05       | 6.0     | C |   |
| Zinc      | 200.3           | 0.556  | 0.062   | 1    | 4/28/05        | 4/29/05       | 17.2    |   |   |

Solid: 0.3

Comments:

## Columbia Analytical Services

 DISSOLVED METALS  
 -I-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: E2502714

Project No.: NA

Date Collected: 04/11/05

Project Name: Moffett Site 1

Date Received: 04/14/05

Matrix: WATER

Units: µG/L

Basis: NA

Sample Name: 36-S1-115

Lab Code: K2502714-007 DISS

| Analyte   | Analysis Method | MRL    | MDL     | Dil. | Date Extracted | Date Analyzed | Result  | C | Q |
|-----------|-----------------|--------|---------|------|----------------|---------------|---------|---|---|
| Aluminum  | 6010B           | 30     | 50      | 1    | 4/21/05        | 4/25/05       | 50      | U |   |
| Antimony  | 200.8           | 1.000  | 0.120   | 1    | 4/21/05        | 4/25/05       | 0.414   | B |   |
| Arsenic   | 200.5           | 1.110  | 0.004   | 2    | 4/25/05        | 4/29/05       | 2.760   | N |   |
| Barium    | 200.8           | 1.00   | 0.60    | 1    | 4/21/05        | 4/25/05       | 289     |   |   |
| Beryllium | 200.8           | 0.0440 | 0.00018 | 2    | 4/28/05        | 4/29/05       | 0.01100 | S | N |
| Cadmium   | 200.8           | 0.0164 | 0.0007  | 2    | 4/28/05        | 4/29/05       | 0.0507  | U |   |
| Chromium  | 200.5           | 0.144  | 0.004   | 2    | 4/28/05        | 4/29/05       | 26.0    |   |   |
| Cobalt    | 200.8           | 0.0464 | 0.0004  | 2    | 4/28/05        | 4/29/05       | 1.5300  |   |   |
| Copper    | 200.8           | 0.2220 | 0.0016  | 2    | 4/28/05        | 4/29/05       | 0.8310  | N |   |
| Lead      | 200.8           | 0.044  | 0.002   | 2    | 4/28/05        | 4/29/05       | 0.160   |   |   |
| Nickel    | 200.5           | 2.220  | 0.022   | 10   | 4/28/05        | 4/29/05       | 427     |   |   |
| Selenium  | 7142            | 1.00   | 0.30    | 2    | 4/21/05        | 5/2/05        | 0.84    | B |   |
| Silver    | 200.8           | 0.0444 | 0.0011  | 2    | 4/28/05        | 4/29/05       | 0.0017  | B |   |
| Thallium  | 200.6           | 0.0440 | 0.00013 | 2    | 4/28/05        | 4/29/05       | 0.00013 | U |   |
| Vanadium  | 6010B           | 10.0   | 6.0     | 1    | 4/21/05        | 4/25/05       | 6.0     | U |   |
| Zinc      | 200.9           | 1.110  | 0.004   | 2    | 4/28/05        | 4/29/05       | 0.280   |   |   |

8 Pages: 8

Comments:

**Columbia Analytical Services**
**DISSOLVED METALS**

-1-

**INORGANIC ANALYSIS DATA SHEET**

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected: 04/12/05

Project Name: Moffett Site I

Date Received: 04/15/05

Matrix: WATER

Units: µg/l

Basis: NA

Sample Name: 86-S1-146

Lab Code: K2502714-008 DISS

| Analyte    | Analysis Method | MRJ     | MDL     | Dil. | Date Extracted | Date Analyzed | Result  | C | Q |
|------------|-----------------|---------|---------|------|----------------|---------------|---------|---|---|
| Aluminum   | 6010B           | 50      | 50      | 1    | 4/21/05        | 4/25/05       | 50      | U |   |
| Antimony   | 200.8           | 0.000   | 0.120   | 1    | 4/21/05        | 4/25/05       | 0.214   | U |   |
| Arsenic    | 200.8           | 0.558   | 0.002   | 1    | 4/28/05        | 4/29/05       | 1.050   | U |   |
| Barium     | 200.8           | 1.00    | 0.60    | 1    | 4/21/05        | 4/25/05       | 507     | U |   |
| Beryllium  | 200.8           | 0.02220 | 0.00009 | 1    | 4/28/05        | 4/29/05       | 0.00116 | U |   |
| Cadmium    | 200.8           | 0.0222  | 0.0003  | 1    | 4/28/05        | 4/29/05       | 0.0005  | U |   |
| Chromium   | 200.3           | 0.222   | 0.002   | 1    | 4/28/05        | 4/29/05       | 0.556   | U |   |
| Cobalt     | 200.8           | 0.0222  | 0.0002  | 1    | 4/28/05        | 4/29/05       | 1.2900  | U |   |
| Copper     | 200.8           | 0.1416  | 0.0003  | 1    | 4/28/05        | 4/29/05       | 0.1420  | U |   |
| Lead       | 200.8           | 0.022   | 0.001   | 1    | 4/28/05        | 4/29/05       | 0.007   | U |   |
| Nickel     | 200.3           | 0.222   | 0.002   | 1    | 4/28/05        | 4/29/05       | 4.020   | U |   |
| Selenium   | 7742            | 1.30    | 0.30    | 2    | 4/21/05        | 5/2/05        | 0.44    | U |   |
| Silver     | 200.8           | 0.0222  | 0.0006  | 1    | 4/28/05        | 4/29/05       | 0.0006  | U |   |
| Phosphorus | 200.8           | 0.02220 | 0.00007 | 1    | 4/28/05        | 4/29/05       | 0.00007 | U |   |
| Vanadium   | 6010B           | 10.0    | 6.0     | 1    | 4/21/05        | 4/25/05       | 6.0     | U |   |
| Zinc       | 200.8           | 0.1416  | 0.002   | 1    | 4/28/05        | 4/29/05       | 0.122   | U |   |

# Results: 0 0

Comments:

## Columbia Analytical Services

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected: 04/12/05

Project Name: Moffett Site 1

Date Received: 04/15/05

Matrix: WATER

Units: ug/L

Basis: NA

Sample Name: 86-81-117

Lab Code: K2502714-009 DISS

| Analyte   | Analysis Method | MRL    | MRL     | Dil. | Date Extracted | Date Analyzed | Result  | C | Q |
|-----------|-----------------|--------|---------|------|----------------|---------------|---------|---|---|
| Aluminum  | 6010B           | 50     | 50      | 1    | 4/21/05        | 4/26/05       | 50      | U |   |
| Antimony  | 200.8           | 1.000  | 0.120   | 1    | 4/21/05        | 4/25/05       | 0.204   | E |   |
| Arsenic   | 200.6           | 0.556  | 0.002   | 1    | 4/28/05        | 4/29/05       | 2.090   |   | N |
| Barium    | 200.8           | 1.00   | 0.60    | 1    | 4/21/05        | 4/25/05       | 130     |   |   |
| Beryllium | 200.6           | 0.0220 | 0.00009 | 1    | 4/28/05        | 4/28/05       | 0.00052 | N | N |
| Cadmium   | 200.8           | 0.0222 | 0.0003  | 1    | 4/28/05        | 4/29/05       | 0.0363  |   |   |
| Chromium  | 200.6           | 0.222  | 0.002   | 1    | 4/28/05        | 4/29/05       | 0.263   |   |   |
| Cobalt    | 200.8           | 0.0222 | 0.0002  | 1    | 4/28/05        | 4/29/05       | 2.7409  |   |   |
| Copper    | 200.6           | 0.1110 | 0.0005  | 1    | 4/26/05        | 4/29/05       | 0.2393  |   | N |
| Lead      | 200.8           | 0.022  | 0.001   | 1    | 4/26/05        | 4/26/05       | 0.007   | N |   |
| Nickel    | 200.8           | 0.222  | 0.002   | 1    | 4/26/05        | 4/29/05       | 5.410   |   |   |
| Selenium  | 7742            | 1.00   | 0.30    | 2    | 4/21/05        | 5/2/05        | 0.40    | N |   |
| Silver    | 200.8           | 0.0222 | 0.0006  | 1    | 4/28/05        | 4/29/05       | 0.0150  | N |   |
| Thallium  | 200.8           | 0.0220 | 0.00007 | 1    | 4/28/05        | 4/29/05       | 0.00007 | U |   |
| Vanadium  | 6010B           | 10.0   | 6.6     | 1    | 4/21/05        | 4/25/05       | 6.0     | U |   |
| Zinc      | 200.6           | 0.556  | 0.002   | 1    | 4/28/05        | 4/29/05       | 6.450   |   |   |

1. 86-81-117

Comments:

## Columbia Analytical Services

 DISSOLVED METALS  
 -I-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: X2502714

Project No.: NA

Date Collected: 04/12/05

Project Name: Morfett Site 1

Date Received: 04/15/05

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-118

Lab Code: X2502714-010 DISS

| Analyte   | Analysis Method | MRU     | MDL     | Dil. | Date Extracted | Date Analyzed | Result  | C | Q |
|-----------|-----------------|---------|---------|------|----------------|---------------|---------|---|---|
| Aluminum  | 6010B           | 50      | 50      | 1    | 4/21/05        | 4/25/05       | 50      | U |   |
| Antimony  | 200.8           | 1.000   | 0.120   | 1    | 4/21/05        | 4/25/05       | C.202   | B |   |
| Arsenic   | 200.8           | C.556   | 0.002   | 1    | 4/29/05        | 4/29/05       | 1.770   | N |   |
| Barium    | 200.8           | 1.00    | 0.60    | 1    | 4/21/05        | 4/25/05       | 130     |   |   |
| Beryllium | 200.8           | 0.02220 | 0.0006  | 1    | 4/29/05        | 4/29/05       | 0.00009 | C | N |
| Cadmium   | 200.8           | C.0223  | 0.0053  | 1    | 4/28/05        | 4/29/05       | 0.0413  |   |   |
| Chromium  | 200.8           | C.222   | 0.002   | 1    | 4/28/05        | 4/29/05       | C.257   |   |   |
| Cobalt    | 200.8           | 0.0222  | 0.0002  | 1    | 4/29/05        | 4/25/05       | 2.4000  |   |   |
| Copper    | 200.8           | C.1110  | 0.0059  | 1    | 4/28/05        | 4/29/05       | C.4240  | N |   |
| Lead      | 200.8           | C.022   | 0.001   | 1    | 4/28/05        | 4/29/05       | 0.020   | B |   |
| Nickel    | 200.8           | 0.222   | 0.002   | 1    | 4/28/05        | 4/29/05       | 5.276   |   |   |
| Selenium  | 7522            | 1.00    | C.20    | 2    | 4/21/05        | 5/2/05        | 0.46    | B |   |
| Silver    | 200.8           | C.0222  | C.0006  | 1    | 4/29/05        | 4/25/05       | 0.0151  | B |   |
| Thallium  | 200.8           | 0.02220 | 0.00007 | 1    | 4/29/05        | 4/29/05       | 0.00007 | U |   |
| Vanadium  | 6010B           | 10.0    | 5.0     | 1    | 4/21/05        | 4/25/05       | 6.0     | U |   |
| Zinc      | 200.8           | 0.336   | 0.002   | 1    | 4/28/05        | 4/29/05       | 7.150   |   |   |

# Solids: 0.5

Comments:



## Columbia Analytical Services

 DISSOLVED METALS  
 -I-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected: 04/19/05

Project Name: Moffett Site 1

Date Received: 04/15/05

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 06-81-119

Lab Code: K2502714-011 DSS

| Analyte   | Analysis Method | URL     | MDL     | Dil. | Date Extracted | Date Analyzed | Result  | C | Q |
|-----------|-----------------|---------|---------|------|----------------|---------------|---------|---|---|
| Aluminum  | 6010B           | 50      | 50      | 1    | 4/21/05        | 4/25/05       | 50      | U |   |
| Antimony  | 200.8           | 2.000   | 0.240   | 2    | 4/21/05        | 4/25/05       | 0.252   | B |   |
| Arsenic   | 200.8           | 0.556   | 0.002   | 1    | 4/28/05        | 4/29/05       | 6.150   | B |   |
| Barium    | 200.8           | 2.00    | 1.20    | 2    | 4/21/05        | 4/25/05       | 218     |   |   |
| Beryllium | 200.8           | 0.02220 | 0.00009 | 1    | 4/28/05        | 4/29/05       | 0.00217 | B |   |
| Cadmium   | 200.8           | 0.0222  | 0.0003  | 1    | 4/28/05        | 4/29/05       | 0.0056  | B |   |
| Chromium  | 200.9           | 0.222   | 0.002   | 1    | 4/28/05        | 4/29/05       | 1.190   |   |   |
| Cobalt    | 200.8           | 0.0222  | 0.0002  | 1    | 4/28/05        | 4/29/05       | 6.2900  |   |   |
| Copper    | 200.5           | 0.110   | 0.0005  | 1    | 4/28/05        | 4/29/05       | 0.2430  | B |   |
| Lead      | 200.8           | 0.022   | 0.001   | 1    | 4/28/05        | 4/29/05       | 0.014   | B |   |
| Nickel    | 200.9           | 0.222   | 0.002   | 1    | 4/28/05        | 4/29/05       | 12.2    |   |   |
| Selenium  | 7742            | 1.00    | 0.30    | 2    | 4/21/05        | 5/2/05        | 0.44    | B |   |
| Silver    | 200.5           | 0.022   | 0.0006  | 1    | 4/28/05        | 4/29/05       | 0.0031  | B |   |
| Thallium  | 774.8           | 0.02220 | 0.00007 | 1    | 4/28/05        | 4/29/05       | 0.00007 | B |   |
| Vanadium  | 6010B           | 10.0    | 6.0     | 1    | 4/21/05        | 4/25/05       | 8.5     | B |   |
| Zinc      | 200.9           | 0.556   | 0.002   | 1    | 4/28/05        | 4/29/05       | 0.792   |   |   |

† Solids: 0.0

Comments:

**Columbia Analytical Services**

 DISSOLVED METALS  
 -1-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: X2502714

Project No.: NA

Date Collected: 04/13/05

Project Name: Moffatt Site 3

Date Received: 04/15/05

Material: WATER

Units: µg/L

Basis: NA

Sample Name: R6-S1-120

Lab Code: X2502714-012 0158

| Analyte   | Analysis Method | MRL    | MDL     | Dil. | Date Extracted | Date Analyzed | Result  | C | Q |
|-----------|-----------------|--------|---------|------|----------------|---------------|---------|---|---|
| Aluminum  | 60103           | 50     | 50      | 1    | 4/21/05        | 4/25/05       | 50      | U |   |
| Antimony  | 200.8           | 1.000  | 0.120   | 1    | 4/21/05        | 4/25/05       | 0.312   | R |   |
| Arsenic   | 200.8           | 0.556  | 0.002   | 1    | 4/28/05        | 4/28/05       | 0.480   | N |   |
| Barium    | 200.8           | 1.00   | 0.60    | 1    | 4/21/05        | 5/25/05       | 240     |   |   |
| Beryllium | 200.8           | 0.0220 | 0.00059 | 1    | 4/28/05        | 4/28/05       | 0.00052 | N |   |
| Cadmium   | 200.8           | 0.022  | 0.0003  | 1    | 4/28/05        | 4/28/05       | 0.0003  | U |   |
| Chromium  | 200.8           | 0.222  | 0.002   | 1    | 4/28/05        | 4/28/05       | 0.376   |   |   |
| Cobalt    | 200.8           | 0.0222 | 0.0002  | 1    | 4/28/05        | 4/28/05       | 0.0000  |   |   |
| Copper    | 200.8           | 0.1110 | 0.0005  | 1    | 4/28/05        | 4/28/05       | 0.0140  | R |   |
| Lead      | 200.8           | 0.022  | 0.001   | 1    | 4/28/05        | 4/28/05       | 0.001   | E |   |
| Nickel    | 200.8           | 0.022  | 0.002   | 1    | 4/28/05        | 4/28/05       | 17.2    |   |   |
| Selenium  | 7742            | 1.00   | 0.30    | 2    | 4/21/05        | 5/2/05        | 0.54    | E |   |
| Silver    | 200.8           | 0.0222 | 0.0006  | 1    | 4/28/05        | 4/28/05       | 0.0005  | B |   |
| Thallium  | 200.8           | 0.0220 | 0.00007 | 1    | 4/28/05        | 4/28/05       | 0.00007 | N |   |
| Vanadium  | 6010B           | 0.5    | 0.0     | 1    | 4/21/05        | 4/25/05       | 7.1     | E |   |
| Zinc      | 200.8           | 0.556  | 0.002   | 1    | 4/28/05        | 4/28/05       | 0.460   | R |   |

9 Solids: 0.0

Comments:

## Columbia Analytical Services

 DISSOLVED METALS  
 -I-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected:

Project Name: Moffett Site 1

Date Received:

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: Method Blank

Lab Code: K2502714-MB

| Analyte   | Analysis Method | MRCL    | MDL     | Dil. | Date Extracted | Date Analyzed | Result  | C | Q |
|-----------|-----------------|---------|---------|------|----------------|---------------|---------|---|---|
| Aluminum  | 6010B           | 50      | 50      | 1    | 4/21/05        | 4/25/05       | 50      | U |   |
| Antimony  | 200.8           | 1.000   | 0.120   | 1    | 4/21/05        | 4/25/05       | 0.120   | U |   |
| Arsenic   | 200.8           | 0.556   | 0.002   | 1    | 4/28/05        | 4/29/05       | 0.002   | U | N |
| Barium    | 200.8           | 1.00    | 0.60    | 1    | 4/21/05        | 4/25/05       | 0.60    | U |   |
| Beryllium | 200.8           | 0.02220 | 0.00009 | 1    | 4/28/05        | 4/29/05       | 0.00009 | U | N |
| Cadmium   | 200.8           | 0.0222  | 0.0003  | 1    | 4/29/05        | 4/29/05       | 0.0003  | U |   |
| Chromium  | 200.8           | 0.022   | 0.002   | 1    | 4/28/05        | 4/29/05       | 0.002   | U |   |
| Cobalt    | 200.8           | 0.0228  | 0.0002  | 1    | 4/28/05        | 4/29/05       | 0.0002  | U |   |
| Copper    | 200.8           | 0.110   | 0.0099  | 1    | 4/28/05        | 4/29/05       | 0.0010  | U | # |
| Lead      | 200.8           | 0.022   | 0.001   | 1    | 4/28/05        | 4/29/05       | 0.001   | U |   |
| Nickel    | 200.8           | 0.022   | 0.002   | 1    | 4/28/05        | 4/29/05       | 0.001   | U |   |
| Selenium  | 7742            | 1.90    | 0.39    | 2    | 4/25/05        | 5/2/05        | 0.14    | U |   |
| Silver    | 200.8           | 0.0222  | 0.0006  | 1    | 4/28/05        | 4/29/05       | 0.0006  | U |   |
| Thallium  | 200.8           | 0.02220 | 0.00007 | 1    | 4/28/05        | 4/29/05       | 0.00007 | U |   |
| Vanadium  | 6010B           | 10.0    | 5.0     | 1    | 4/21/05        | 4/25/05       | 5.0     | U |   |
| Zinc      | 200.8           | 0.056   | 0.002   | 1    | 4/28/05        | 4/29/05       | 0.006   | U |   |

% solids: 0.0

Comments:

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 11, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 05D053

**Sample Identification**

86-S1-121  
86-S1-108  
86-S1-109\*\*

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

### **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

### **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

### **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for all individual compounds.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

### **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

For the purposes of technical evaluation, all compounds were evaluated against the 20.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

### **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

### **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

#### **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

#### **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **IX. Regional Quality Assurance and Quality Control**

Not applicable.

#### **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

#### **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

#### **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

#### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

Sample 86-S1-121 was identified as a trip blank. No volatile contaminants were found in this blank.



**Moffett Airfield, MFA Site 1, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 05D053**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 05D053**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 11, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05D053

**Sample Identification**

86-S1-108  
86-S1-109\*\*

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 05D053**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05D053**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 11, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Chlorinated Pesticides  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 05D053

**Sample Identification**

86-S1-108  
86-S1-109\*\*

\*\*Indicates sample underwent EPA Level IV review.



## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

### **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

### **II. GC/ECD Instrument Performance Check**

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

### **III. Initial Calibration**

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

### **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

The individual 4,4'-DDT and Endrin breakdowns were less than 15.0% .

### **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

#### **XIV. Field Duplicates**

No field duplicates were identified in this SDG.

#### **XV. Field Blanks**

No field blanks were identified in this SDG.

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 11, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Polychlorinated Biphenyls  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 05D053

**Sample Identification**

86-S1-108  
86-S1-109\*\*

\*\*Indicates sample underwent EPA Level IV review.

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance data were not provided and therefore not reviewed.

## **III. Initial Calibration**

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **XIV. Field Duplicates**

No field duplicates were identified in this SDG.

## **XV. Field Blanks**

No field blanks were identified in this SDG.



**Moffett Airfield, MFA Site 1, CTO 86**  
**Polychlorinated Biphenyls - Data Qualification Summary - SDG 05D053**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 05D053**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86  
**Collection Date:** April 11, 2005  
**LDC Report Date:** May 23, 2005  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc./Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** 05D053/K2502714

**Sample Identification**

86-S1-108  
86-S1-109\*\*

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B and 7000 and EPA Method 200.8 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

### I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

### II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

### III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

| Method Blank ID | Analyte                                                                    | Maximum Concentration                                                                      | Associated Samples                 |
|-----------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------------------------|
| PB (prep blank) | Beryllium<br>Copper<br>Nickel<br>Selenium<br>Thallium<br>Zinc              | 0.00009 ug/L<br>0.0010 ug/L<br>0.031 ug/L<br>0.74 ug/L<br>0.00027 ug/L<br>0.006 ug/L       | All samples in SDG 05D053/K2502714 |
| ICB/CCB         | Antimony                                                                   | 0.012 ug/L                                                                                 | 86-S1-108                          |
| ICB/CCB         | Beryllium<br>Cadmium<br>Cobalt<br>Nickel<br>Selenium<br>Silver<br>Thallium | 0.02 ug/L<br>0.02 ug/L<br>0.0050 ug/L<br>0.495 ug/L<br>0.28 ug/L<br>0.01 ug/L<br>0.05 ug/L | All samples in SDG 05D053/K2502714 |
| ICB/CCB         | Antimony                                                                   | 0.014 ug/L                                                                                 | 86-S1-109**                        |

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

| Sample      | Analyte                                                            | Reported Concentration                                                                | Modified Final Concentration                                                                |
|-------------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| 86-S1-108   | Antimony<br>Beryllium<br>Selenium                                  | 0.395 ug/L<br>0.00426 ug/L<br>0.46 ug/L                                               | 0.396U ug/L<br>0.00426U ug/L<br>0.46U ug/L                                                  |
| 86-S1-109** | Antimony<br>Beryllium<br>Cadmium<br>Selenium<br>Silver<br>Thallium | 0.304 ug/L<br>0.00883 ug/L<br>0.0025 ug/L<br>0.46 ug/L<br>0.0013 ug/L<br>0.00210 ug/L | 0.304U ug/L<br>0.00883U ug/L<br>0.0025U ug/L<br>0.46U ug/L<br>0.0013U ug/L<br>0.00210U ug/L |

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

| Spike ID<br>(Associated Samples)                      | Analyte                        | %R (Limits)                               | Flag                                    | A or P |
|-------------------------------------------------------|--------------------------------|-------------------------------------------|-----------------------------------------|--------|
| 86-S1-110MS<br>(All samples in SDG<br>US053/K2502714) | Arsenic<br>Beryllium<br>Copper | 56 (75-125)<br>69 (75-125)<br>73 (75-125) | J (all detects)<br>UJ (all non-detects) | A      |

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits for samples on which a EPA Level IV review was performed with the following exceptions:

| Sample      | Internal Standard                                         | %R (Limits)                                      | Analyte                                                                                              | Flag                                    | A or P |
|-------------|-----------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------|--------|
| 86-S1-109** | Nickel-61<br>Indium-115 (4/29/05)<br>Indium-115 (4/25/05) | 253.6 (60-125)<br>143 (60-125)<br>148.5 (60-125) | Nickel<br>Arsenic<br>Cadmium<br>Chromium<br>Cobalt<br>Copper<br>Silver<br>Zinc<br>Antimony<br>Barium | J (all detects)<br>UU (all non-detects) | P      |

Raw data were not evaluated for the samples reviewed by Level III criteria.

#### IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for samples reviewed by Level III criteria.

#### X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

#### XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

| Sample                                | Analyte  | Finding                                                 | Criteria                                                  | Flag | A or P |
|---------------------------------------|----------|---------------------------------------------------------|-----------------------------------------------------------|------|--------|
| All samples in SDG<br>05D053/K2502714 | Antimony | Laboratory method detection limit reported at 0.12 ug/L | MDL should be reported at 0.05 ug/L per the QAPP.<br>§ 11 | None | P      |
| All samples in SDG<br>05D053/K2502714 | Barium   | Laboratory method detection limit reported at 0.60 ug/L | MDL should be reported at 0.05 ug/L per the QAPP.<br>§ 12 | None | P      |

Raw data were not evaluated for samples reviewed by Level III criteria.

#### XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

#### XIII. Field Duplicates

No field duplicates were identified in this SDG.

#### **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Air Field, Site 1, CTO 86**  
**Metals - Data Qualification Summary - SDG 05D053/K2502714**

| SDG                 | Sample                   | Analyte                                                                                              | Flag                                    | A or P | Reason                     |
|---------------------|--------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------|--------|----------------------------|
| 05D053/<br>K2502714 | 86-S1-108<br>86-S1-109** | Arsenic<br>Beryllium<br>Copper                                                                       | J (all detects)<br>UJ (all non-detects) | A      | Matrix spike analysis (%R) |
| 05D053/<br>K2502714 | 86-S1-109**              | Nickel<br>Arsenic<br>Cadmium<br>Chromium<br>Cobalt<br>Copper<br>Silver<br>Zinc<br>Antimony<br>Barium | J (all detects)<br>UJ (all non-detects) | P      | Internal standards (%R)    |
| 05D053/<br>K2502714 | 86-S1-108<br>86-S1-109** | Antimony<br>Barium                                                                                   | None<br>None                            | P      | Sample result verification |

**Moffett Air Field, Site 1, CTO 86**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 05D053/K2502714**

| SDG                 | Sample      | Analyte                                                            | Modified Final Concentration                                                                | A or P |
|---------------------|-------------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------|--------|
| 05D053/<br>K2502714 | 86-S1-108   | Antimony<br>Beryllium<br>Selenium                                  | 0.396U ug/L<br>0.00426U ug/L<br>0.46U ug/L                                                  | A      |
| 05D053/<br>K2502714 | 86-S1-109** | Antimony<br>Beryllium<br>Cadmium<br>Selenium<br>Silver<br>Thallium | 0.304U ug/L<br>0.00883U ug/L<br>0.0025U ug/L<br>0.46U ug/L<br>0.0013U ug/L<br>0.00210U ug/L | A      |







LABORATORIES, INC.  
 1835 W. COMMERCIAL  
 SHERBORNE, CA 93021  
 TEL: (916) 613-0800  
 FAX: (916) 613-0810

Date: 05-28-2005  
 EMAX Report No.: US0086

Attn: Lynn Jefferson

Teira Tech Pk, Inc.  
 1740 E. Beech Ave., Suite 260  
 Santa Ana, CA 92705

Subject: Laboratory Report  
 Project: MFA, Site 1, CTO 86

Enclosed is the laboratory report for samples received on 05/14/05. The data reported includes:

| Sample ID | Container | Col Date | Matrix | Analysis                                                                                                                                                          |
|-----------|-----------|----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 86-11-175 | 0060-01   | 05/12/05 | WATER  | VOLATILE ORGANICS BY GC/MS<br>VOLATILE ORGANICS BY GC/MS<br>PESTICIDES ORGANIC/CHLORINE<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>MERCURY DISSOLVED<br>HT20000M      |
| 86-11-176 | 0060-02   | 05/12/05 | WATER  | SEMI-VOLATILE ORGANICS BY GC/MS<br>VOLATILE ORGANICS BY GC/MS<br>PESTICIDES ORGANIC/CHLORINE<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>MERCURY DISSOLVED<br>HT20000M |
| 86-11-177 | 0060-03   | 05/12/05 | WATER  | SEMI-VOLATILE ORGANICS BY GC/MS<br>VOLATILE ORGANICS BY GC/MS<br>PESTICIDES ORGANIC/CHLORINE<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>MERCURY DISSOLVED<br>HT20000M |
| 86-11-178 | 0060-04   | 05/12/05 | WATER  | SEMI-VOLATILE ORGANICS BY GC/MS<br>VOLATILE ORGANICS BY GC/MS<br>PESTICIDES ORGANIC/CHLORINE<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>MERCURY DISSOLVED<br>HT20000M |

| Sample ID | Control # | Col Date | Matrix | Analysis                                                                                                                                                                                                                                                                                                                             |
|-----------|-----------|----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bo st-110 | 0068-05   | 01/13/05 | WATER  | VOLATILE ORGANICS BY GC/MS<br>PESTICIDES ORGANIC CHLORINE<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>MERCURY DISSOLVED<br>MT2008W<br>SEMI-VOLATILE ORGANICS BY GC/MS<br>VOLATILE ORGANICS BY GC/MS<br>PESTICIDES ORGANIC CHLORINE<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>MERCURY DISSOLVED<br>MT2008W<br>SEMI-VOLATILE ORGANICS BY GC/MS |
| Bo st-120 | 0069-06   | 01/13/05 | WATER  |                                                                                                                                                                                                                                                                                                                                      |

Note: Results for Dissolved Metals which were subcontracted to Columbia Analytical Services, Inc. may be found in SPS 050053.

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kim Y. Pang, Ph.D.  
 Laboratory Director

# CASE NARRATIVE

CLIENT: TETRA TECH FW, INC.

PROJECT: MFA, SITE 1, CTO 85

SDG: 05D068

## SW 5030B/8260B VOLATILE ORGANICS BY GC/MS

Six (6) water samples were received on 04/14/05 for Volatile Organic analysis by Method 5030B/8260B in accordance with USEPA SW846, 3<sup>rd</sup> ed.

### 1. Holding Time

Analytical holding time was met.

### 2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

### 3. Method Blank

Method blank was free of contamination at the reporting limit.

### 4. Surrogate Recovery

Recoveries were within QC limit.

### 5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

### 6. Matrix Spike/Matrix Spike Duplicate

No MS/MS sample was designated in this SDG.

### 7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

IN 51908/82636  
VJ TITLE 0804163 B GC/MS

[illegible]

| RAJULIS | RI     | PO     |
|---------|--------|--------|
| (10/1)  | (10/1) | (10/1) |

[illegible]

| ITEM                          | QUANTITY | UNIT PRICE |
|-------------------------------|----------|------------|
| 1. 2-1/2" DIA. CASE TRANS-104 | 160      | 40         |
| 2. 2-1/2" DIA. CASE TRANS-104 | 160      | 40         |
| 3. 2-1/2" DIA. CASE TRANS-104 | 160      | 40         |

```

1.1.1.1 Reporting Limit:
1.1.1.1.1 0.5 of GL
1.1.1.1.2 Calibration Range
1.1.1.1.3 Initial Sp. associated period (hrs)
1.1.1.1.4 Value between 0.1 and 100
1.1.1.1.5 Value from 0 (system always)
1.1.1.1.6 Started on

```



SW 503CB/82606  
VOLATILE ORGANICS BY GC/MS

|                 |         |     |    |        |                   |                |
|-----------------|---------|-----|----|--------|-------------------|----------------|
| Client :        | TETRA   | EM  | W  | INC    | Date Collected:   | 04/10/96       |
| Project :       | WA      | SIF | 1  | MID 95 | Date Recvd:       | 04/10/96       |
| Batch No :      | 350606  |     |    |        | Date Extracted:   | 07/10/96 23:30 |
| Sample :        | 10:     | 86  | 51 | 7      | Date Analyzed:    | 07/10/96 23:30 |
| Lab Sample ID : | 860337  |     |    |        | Oil/Water Factor: | WATER          |
| Lab Batch ID :  | 1005530 |     |    |        | Moisture :        | N/A            |
| Ext. Batch ID : | 86022   |     |    |        | Instrument ID :   | INC            |

| RESULTS | RL     | NCI    |
|---------|--------|--------|
| (ug/L)  | (ug/L) | (ug/L) |

[illegible]

```

C.I. = 1  reporting level
          out of 10
          expanded calibration range
          found in associated method || and
          value between C.I. and M.C.
          value from dilution analysis
          diluted out

```

SV 90305/82603  
VUI AILE ORGANIC BY CC/MS

Client: 7878 (Ed Inc.) Date Collected: 04/17/95  
Project: AEA SITE, 110 Bb Date Received: 04/19/95 09:15  
Auton N: 05C6CB Date Entered: 04/19/95 09:15  
Auton E: 06-S1-219 Date Analyzed: 04/19/95 09:15  
Location Factor: 1  
Matrix: WATER  
Moisture: NA  
% Inorganic: 0.005  
Ext Pch ID: 006251

| 0.5-500 μS<br>(μg/l) | Pt<br>(μg/l) | HCl<br>(μg/l) |
|----------------------|--------------|---------------|
|----------------------|--------------|---------------|

| NUMBERS | NAME                            | UNIT |
|---------|---------------------------------|------|
| 1       | 1,2-ETACHLOROETHANE             | MG   |
| 2       | 1,2-DICHLOROTRADE               | MG   |
| 3       | 1,2-TETRACHLOROETHANE           | MG   |
| 4       | 1,2-TRICHLOROETHANE             | MG   |
| 5       | 1,2-DICHLOROETHANE              | MG   |
| 6       | 1,2-DICHLOROPROPANE             | MG   |
| 7       | 1,2-DICHLOROBENZENE             | MG   |
| 8       | 1,2-TRICHLOROPROPANE            | MG   |
| 9       | 1,2-TRICHLOROBENZENE            | MG   |
| 10      | 1,2-TRICHLOROBENZENE            | MG   |
| 11      | 1,2-DIBROMO-1,2-DICHLOROPROPANE | MG   |
| 12      | 1,2-DICHLOROBENZENE             | MG   |
| 13      | 1,2-DICHLOROTRADE               | MG   |
| 14      | 1,2-DICHLOROPROPANE             | MG   |
| 15      | 1,2-DICHLOROBENZENE             | MG   |
| 16      | 1,2-DICHLOROPROPANE             | MG   |
| 17      | 1,2-DICHLOROBENZENE             | MG   |
| 18      | 1,2-DICHLOROPROPANE             | MG   |
| 19      | 1,2-DICHLOROBENZENE             | MG   |
| 20      | 1,2-DICHLOROPROPANE             | MG   |
| 21      | 1,2-DICHLOROBENZENE             | MG   |
| 22      | 1,2-DICHLOROPROPANE             | MG   |
| 23      | 1,2-DICHLOROBENZENE             | MG   |
| 24      | 1,2-DICHLOROPROPANE             | MG   |
| 25      | 1,2-DICHLOROBENZENE             | MG   |
| 26      | 1,2-DICHLOROPROPANE             | MG   |
| 27      | 1,2-DICHLOROBENZENE             | MG   |
| 28      | 1,2-DICHLOROPROPANE             | MG   |
| 29      | 1,2-DICHLOROBENZENE             | MG   |
| 30      | 1,2-DICHLOROPROPANE             | MG   |
| 31      | 1,2-DICHLOROBENZENE             | MG   |
| 32      | 1,2-DICHLOROPROPANE             | MG   |
| 33      | 1,2-DICHLOROBENZENE             | MG   |
| 34      | 1,2-DICHLOROPROPANE             | MG   |
| 35      | 1,2-DICHLOROBENZENE             | MG   |
| 36      | 1,2-DICHLOROPROPANE             | MG   |
| 37      | 1,2-DICHLOROBENZENE             | MG   |
| 38      | 1,2-DICHLOROPROPANE             | MG   |
| 39      | 1,2-DICHLOROBENZENE             | MG   |
| 40      | 1,2-DICHLOROPROPANE             | MG   |
| 41      | 1,2-DICHLOROBENZENE             | MG   |
| 42      | 1,2-DICHLOROPROPANE             | MG   |
| 43      | 1,2-DICHLOROBENZENE             | MG   |
| 44      | 1,2-DICHLOROPROPANE             | MG   |
| 45      | 1,2-DICHLOROBENZENE             | MG   |
| 46      | 1,2-DICHLOROPROPANE             | MG   |
| 47      | 1,2-DICHLOROBENZENE             | MG   |
| 48      | 1,2-DICHLOROPROPANE             | MG   |
| 49      | 1,2-DICHLOROBENZENE             | MG   |
| 50      | 1,2-DICHLOROPROPANE             | MG   |
| 51      | 1,2-DICHLOROBENZENE             | MG   |
| 52      | 1,2-DICHLOROPROPANE             | MG   |
| 53      | 1,2-DICHLOROBENZENE             | MG   |
| 54      | 1,2-DICHLOROPROPANE             | MG   |
| 55      | 1,2-DICHLOROBENZENE             | MG   |
| 56      | 1,2-DICHLOROPROPANE             | MG   |
| 57      | 1,2-DICHLOROBENZENE             | MG   |
| 58      | 1,2-DICHLOROPROPANE             | MG   |
| 59      | 1,2-DICHLOROBENZENE             | MG   |
| 60      | 1,2-DICHLOROPROPANE             | MG   |
| 61      | 1,2-DICHLOROBENZENE             | MG   |
| 62      | 1,2-DICHLOROPROPANE             | MG   |
| 63      | 1,2-DICHLOROBENZENE             | MG   |
| 64      | 1,2-DICHLOROPROPANE             | MG   |
| 65      | 1,2-DICHLOROBENZENE             | MG   |
| 66      | 1,2-DICHLOROPROPANE             | MG   |
| 67      | 1,2-DICHLOROBENZENE             | MG   |
| 68      | 1,2-DICHLOROPROPANE             | MG   |
| 69      | 1,2-DICHLOROBENZENE             | MG   |
| 70      | 1,2-DICHLOROPROPANE             | MG   |
| 71      | 1,2-DICHLOROBENZENE             | MG   |
| 72      | 1,2-DICHLOROPROPANE             | MG   |
| 73      | 1,2-DICHLOROBENZENE             | MG   |
| 74      | 1,2-DICHLOROPROPANE             | MG   |
| 75      | 1,2-DICHLOROBENZENE             | MG   |
| 76      | 1,2-DICHLOROPROPANE             | MG   |
| 77      | 1,2-DICHLOROBENZENE             | MG   |
| 78      | 1,2-DICHLOROPROPANE             | MG   |
| 79      | 1,2-DICHLOROBENZENE             | MG   |
| 80      | 1,2-DICHLOROPROPANE             | MG   |
| 81      | 1,2-DICHLOROBENZENE             | MG   |
| 82      | 1,2-DICHLOROPROPANE             | MG   |
| 83      | 1,2-DICHLOROBENZENE             | MG   |
| 84      | 1,2-DICHLOROPROPANE             | MG   |
| 85      | 1,2-DICHLOROBENZENE             | MG   |
| 86      | 1,2-DICHLOROPROPANE             | MG   |
| 87      | 1,2-DICHLOROBENZENE             | MG   |
| 88      | 1,2-DICHLOROPROPANE             | MG   |
| 89      | 1,2-DICHLOROBENZENE             | MG   |
| 90      | 1,2-DICHLOROPROPANE             | MG   |
| 91      | 1,2-DICHLOROBENZENE             | MG   |
| 92      | 1,2-DICHLOROPROPANE             | MG   |
| 93      | 1,2-DICHLOROBENZENE             | MG   |
| 94      | 1,2-DICHLOROPROPANE             | MG   |
| 95      | 1,2-DICHLOROBENZENE             | MG   |
| 96      | 1,2-DICHLOROPROPANE             | MG   |
| 97      | 1,2-DICHLOROBENZENE             | MG   |
| 98      | 1,2-DICHLOROPROPANE             | MG   |
| 99      | 1,2-DICHLOROBENZENE             | MG   |
| 100     | 1,2-DICHLOROPROPANE             | MG   |

|                      | D. DE QUINQ. | DE LIMITE |
|----------------------|--------------|-----------|
| SUMMARE PARAMETRIC   |              |           |
| T. T. BUCHSHOFTHAL-1 | 75           | 62        |
| (N) MEVE-80          | 76           | 79        |
| NATURALISTO-BLZPR    | 92           | 75        |

|                                     |                 |
|-------------------------------------|-----------------|
| R <sub>FL</sub>                     | reporting limit |
| S <sub>FL</sub>                     | salt or so.     |
| Excessed calibration range          |                 |
| Found is interpolated between blank |                 |
| Value between L.L. and N.N.         |                 |
| Scoring from dilution analytic      |                 |
| Blank out                           |                 |



IN 10302/02008  
COPIES 002-4105 BY 62/MS

Date Rec'd: 3/17/75  
 Date Received: 3/17/75 06:50  
 Date Extended: 3/17/75 06:50  
 Date Analyzed: 3/17/75 06:50  
 Sample Description:  
 Name: WETA TECH. INC.  
 Address: WETA STS., C/O 89  
 Station No.: 150080  
 Sample ID: 96-S-119  
 Lab Sample ID: 000805  
 Lab File ID: R0154  
 Lab Date: 000000  
 Lab Time: 000000  
 Lab Ret.: R00221

| RESULT<br>(μg/L) | R <sub>2</sub><br>(μg/L) | MR<br>(μg/L) |
|------------------|--------------------------|--------------|
| 0.00             | 0.00                     | 0.00         |
| 0.05             | 0.05                     | 0.05         |
| 0.10             | 0.10                     | 0.10         |
| 0.15             | 0.15                     | 0.15         |
| 0.20             | 0.20                     | 0.20         |
| 0.25             | 0.25                     | 0.25         |
| 0.30             | 0.30                     | 0.30         |
| 0.35             | 0.35                     | 0.35         |
| 0.40             | 0.40                     | 0.40         |
| 0.45             | 0.45                     | 0.45         |
| 0.50             | 0.50                     | 0.50         |
| 0.55             | 0.55                     | 0.55         |
| 0.60             | 0.60                     | 0.60         |
| 0.65             | 0.65                     | 0.65         |
| 0.70             | 0.70                     | 0.70         |
| 0.75             | 0.75                     | 0.75         |
| 0.80             | 0.80                     | 0.80         |
| 0.85             | 0.85                     | 0.85         |
| 0.90             | 0.90                     | 0.90         |
| 0.95             | 0.95                     | 0.95         |
| 1.00             | 1.00                     | 1.00         |
| 1.05             | 1.05                     | 1.05         |
| 1.10             | 1.10                     | 1.10         |
| 1.15             | 1.15                     | 1.15         |
| 1.20             | 1.20                     | 1.20         |
| 1.25             | 1.25                     | 1.25         |
| 1.30             | 1.30                     | 1.30         |
| 1.35             | 1.35                     | 1.35         |
| 1.40             | 1.40                     | 1.40         |
| 1.45             | 1.45                     | 1.45         |
| 1.50             | 1.50                     | 1.50         |
| 1.55             | 1.55                     | 1.55         |
| 1.60             | 1.60                     | 1.60         |
| 1.65             | 1.65                     | 1.65         |
| 1.70             | 1.70                     | 1.70         |
| 1.75             | 1.75                     | 1.75         |
| 1.80             | 1.80                     | 1.80         |
| 1.85             | 1.85                     | 1.85         |
| 1.90             | 1.90                     | 1.90         |
| 1.95             | 1.95                     | 1.95         |
| 2.00             | 2.00                     | 2.00         |
| 2.05             | 2.05                     | 2.05         |
| 2.10             | 2.10                     | 2.10         |
| 2.15             | 2.15                     | 2.15         |
| 2.20             | 2.20                     | 2.20         |
| 2.25             | 2.25                     | 2.25         |
| 2.30             | 2.30                     | 2.30         |
| 2.35             | 2.35                     | 2.35         |
| 2.40             | 2.40                     | 2.40         |
| 2.45             | 2.45                     | 2.45         |
| 2.50             | 2.50                     | 2.50         |
| 2.55             | 2.55                     | 2.55         |
| 2.60             | 2.60                     | 2.60         |
| 2.65             | 2.65                     | 2.65         |
| 2.70             | 2.70                     | 2.70         |
| 2.75             | 2.75                     | 2.75         |
| 2.80             | 2.80                     | 2.80         |
| 2.85             | 2.85                     | 2.85         |
| 2.90             | 2.90                     | 2.90         |
| 2.95             | 2.95                     | 2.95         |
| 3.00             | 3.00                     | 3.00         |
| 3.05             | 3.05                     | 3.05         |
| 3.10             | 3.10                     | 3.10         |
| 3.15             | 3.15                     | 3.15         |
| 3.20             | 3.20                     | 3.20         |
| 3.25             | 3.25                     | 3.25         |
| 3.30             | 3.30                     | 3.30         |
| 3.35             | 3.35                     | 3.35         |
| 3.40             | 3.40                     | 3.40         |
| 3.45             | 3.45                     | 3.45         |
| 3.50             | 3.50                     | 3.50         |
| 3.55             | 3.55                     | 3.55         |
| 3.60             | 3.60                     | 3.60         |
| 3.65             | 3.65                     | 3.65         |
| 3.70             | 3.70                     | 3.70         |
| 3.75             | 3.75                     | 3.75         |
| 3.80             | 3.80                     | 3.80         |
| 3.85             | 3.85                     | 3.85         |
| 3.90             | 3.90                     | 3.90         |
| 3.95             | 3.95                     | 3.95         |
| 4.00             | 4.00                     | 4.00         |
| 4.05             | 4.05                     | 4.05         |
| 4.10             | 4.10                     | 4.10         |
| 4.15             | 4.15                     | 4.15         |
| 4.20             | 4.20                     | 4.20         |
| 4.25             | 4.25                     | 4.25         |
| 4.30             | 4.30                     | 4.30         |
| 4.35             | 4.35                     | 4.35         |
| 4.40             | 4.40                     | 4.40         |
| 4.45             | 4.45                     | 4.45         |
| 4.50             | 4.50                     | 4.50         |
| 4.55             | 4.55                     | 4.55         |
| 4.60             | 4.60                     | 4.60         |
| 4.65             | 4.65                     | 4.65         |
| 4.70             | 4.70                     | 4.70         |
| 4.75             | 4.75                     | 4.75         |
| 4.80             | 4.80                     | 4.80         |
| 4.85             | 4.85                     | 4.85         |
| 4.90             | 4.90                     | 4.90         |
| 4.95             | 4.95                     | 4.95         |
| 5.00             | 5.00                     | 5.00         |
| 5.05             | 5.05                     | 5.05         |
| 5.10             | 5.10                     | 5.10         |
| 5.15             | 5.15                     | 5.15         |
| 5.20             | 5.20                     | 5.20         |
| 5.25             | 5.25                     | 5.25         |
| 5.30             | 5.30                     | 5.30         |
| 5.35             | 5.35                     | 5.35         |
| 5.40             | 5.40                     | 5.40         |

| PARAMETERS |                    | (mg/L) |    | (ug/L) |    |
|------------|--------------------|--------|----|--------|----|
| 1          | 2-ETHYLACROPHENONE | ND     | ND | ND     | ND |
| 2          | TRICHLOROETHANE    | ND     | ND | ND     | ND |
| 3          | TRICHLOROETHANE    | ND     | ND | ND     | ND |
| 4          | 2-ETHYLACROPHENONE | ND     | ND | ND     | ND |
| 5          | TRICHLOROETHANE    | ND     | ND | ND     | ND |
| 6          | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 7          | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 8          | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 9          | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 10         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 11         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 12         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 13         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 14         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 15         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 16         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 17         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 18         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 19         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 20         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 21         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 22         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 23         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 24         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 25         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 26         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 27         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 28         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 29         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 30         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 31         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 32         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 33         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 34         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 35         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 36         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 37         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 38         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 39         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 40         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 41         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 42         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 43         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 44         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 45         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 46         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 47         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 48         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 49         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 50         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 51         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 52         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 53         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 54         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 55         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 56         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 57         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 58         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 59         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 60         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 61         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 62         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 63         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 64         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 65         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 66         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 67         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 68         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 69         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 70         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 71         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 72         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 73         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 74         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 75         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 76         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 77         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 78         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 79         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 80         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 81         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 82         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 83         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 84         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 85         | DICHLOROMETHANE    | ND     | ND | ND     | ND |
| 86         | DICHLOROMETHANE    | ND     | ND | ND     | ND |

```

0.1.1 : report (log limit)
      : call to AC
      : expanded calculator range
      : name to associated method class
      : value between 0.1 and 100
      : value from differential operator
0      : output of

```

SN 5030B/62693  
WILKIE ORGANICS BY GC/MS

Date Collected: 24/09/05  
Date Received: 24/09/05  
Date Expiry Date: 30/09/05  
Date Analyzed: 30/09/05  
Dilution Factor: 1  
Matrix: WATER  
% Moisture: NA  
% Humidity: 0

50/15 (20/11)

[illegible]

| 2. GROWTH | 02.191 |
|-----------|--------|
| 12        | 62-139 |
| 13        | 73-143 |
| 14        | 79-149 |

```

S.L. = suppress limit
      = out of 3C
      = selected calibration limit
      = found in associated method. Blank
      = value between S.L. and NO.
      = value from direction analysis
      = plotted out

```

## CASE NARRATIVE

CLIENT: TETRA TECH FW, INC.  
PROJECT: MFA, SITE 1, CTO 86  
SDG: 05D068

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Five (5) water samples were received on 04/14/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour intervals. All QC requirements were met.

3. Method Blank

Method blank was free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.



SL 75204/8270C  
SEM VOLATILE ORGANICS BY GC/MS

Client: : TETRA TECH, FW INT Date Collected: 6/12/02  
Project: : ME SITE 1, LTO RD Date Received: 6/14/02 13:30  
Batch No.: : 030608 Date Extracted: 6/16/02  
Sample: : ME SITE 1-117 Date Analyzed: 6/19/02 16:30  
Lab Ward ID: : 2163-15 Dilution Factor: : 5  
Lab File ID: : 804124 Matrix: : WATER  
Batch ID: : 830109 Method: : GC/MS  
Lab Ref: : RCH307 Instrument ID: : 7-041

| PARAMETERS                        | RESULTS (ug/l) | RI (ug/L) | MIL (ug/L) |
|-----------------------------------|----------------|-----------|------------|
| 1. 5-TRICHLOROPHENOL              | ND             | 0.6       | 4.8        |
| 2. 6-TRICHLOROPHENOL              | ND             | 0.5       | 4.8        |
| 3. 4-DICHLOROPHENOL               | ND             | 0.5       | 4.8        |
| 4. 3-METHYLPHENOL                 | ND             | 10        | 0.2        |
| 5. 4-DINITROPHENOL                | ND             | 0.5       | 4.8        |
| 6. 3-NITROPHENOL                  | ND             | 0.5       | 4.8        |
| 7. 4-NITROPHENOL                  | ND             | 0.5       | 4.8        |
| 8. 2-NITROPHENOL                  | ND             | 0.5       | 4.8        |
| 9. 2,4-DICHLOROPHENOL             | ND             | 0.5       | 4.8        |
| 10. 2-METHYLNAPHTHALENE           | ND             | 10        | 0.2        |
| 11. 1-METHYLNAPHTHALENE           | ND             | 10        | 0.2        |
| 12. NITROANILINE                  | ND             | 0.5       | 4.8        |
| 13. 3-NITROANILINE                | ND             | 0.5       | 4.8        |
| 14. 4-NITRO-2-METHYLPHENOL        | ND             | 0.5       | 4.8        |
| 15. 4-BROMOPHENYL PHENYL ETHER    | ND             | 0.5       | 4.8        |
| 16. 4-CHLORO-3-METHYLPHENOL       | ND             | 0.5       | 4.8        |
| 17. 4-CHLORANILINE                | ND             | 0.5       | 4.8        |
| 18. 4-CHLOROPHENYL PHENYL ETHER   | ND             | 0.5       | 4.8        |
| 19. 4-METHYLPHENOL (1)            | ND             | 10        | 0.2        |
| 20. 4-NITROANILINE                | ND             | 0.5       | 4.8        |
| 21. 4-NITROPHENOL                 | ND             | 0.5       | 4.8        |
| 22. ACENAPHTHENE                  | ND             | 0.5       | 4.8        |
| 23. ACENAPHTHYLENE                | ND             | 0.5       | 4.8        |
| 24. ACETAZOLONE                   | ND             | 0.5       | 4.8        |
| 25. BENZO(A)ANTHRACENE            | ND             | 0.5       | 4.8        |
| 26. BENZO(A)PYRENE                | ND             | 0.5       | 4.8        |
| 27. BENZO(B)FLUANTHRENE           | ND             | 0.5       | 4.8        |
| 28. BENZO(E)FLUANTHRENE           | ND             | 0.5       | 4.8        |
| 29. BENZO(G,H,I)PERYLENE          | ND             | 0.5       | 4.8        |
| 30. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 31. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 32. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 33. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 34. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 35. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 36. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 37. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 38. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 39. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 40. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 41. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 42. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 43. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 44. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 45. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 46. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 47. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 48. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 49. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 50. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 51. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 52. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 53. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 54. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 55. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 56. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 57. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 58. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 59. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 60. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 61. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 62. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 63. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 64. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 65. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 66. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 67. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 68. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 69. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 70. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 71. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 72. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 73. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 74. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 75. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 76. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 77. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 78. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 79. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 80. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 81. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 82. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 83. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 84. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 85. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 86. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 87. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 88. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 89. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 90. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 91. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 92. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 93. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 94. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 95. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 96. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 97. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 98. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 99. 2,3,4-CHLOROTRIMETHYLBENZENE  | ND             | 0.5       | 4.8        |
| 100. 2,3,4-CHLOROTRIMETHYLBENZENE | ND             | 0.5       | 4.8        |









# CASE NARRATIVE

CLIENT: TETRA TECH FW, INC.  
 PROJECT: MFA, SITE 1, CTO 86  
 SDG: 05D068

## 5W3520C/86881A PESTICIDES

Five (5) water samples were received on 04/14/08 for Pesticides analysis by Method 3520C/8081A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SM/348, 3<sup>rd</sup> ed.

### 1. Holding Time

Analytical holding time was met.

### 2. Instrument Performance and Calibration

Initial calibration was of five-point for Pesticides, all RSDs were within 20%. All continue calibrations were analyzed at 12 hour interval and mean recoveries were within 85-115%. Cutoff and CDT breakdown were within QC limits.

### 3. Method Blank

Method blank was free of contamination at the reporting limit.

### 4. Surrogate Recovery

Recoveries were within QC limit.

### 5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

### 6. Matrix Spike/Matrix Spike Duplicate

No matrix spike was designated in this RCR.

### 7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All blanks were met.

When parallel results are confirmed by a second analysis, the relative percentage difference (RPD) between the two results is calculated. If RPD is less than 40%, and no evidence of chromatographic problems, the higher result is reported. If RPD is greater than 40%, the chromatogram is checked for anomalies and results are selected based on the best professional judgement. If no evidence of any chromatographic problems, the higher result is reported.



SW3520C/808: A  
PESTICIDES

Client : TEIRA T220 HW, INC.  
Project : MFA, SITE 1, CT2 86  
Batch No. : 050496  
Sample ID: 86-S1-117  
Lab Sample ID: 2068-03  
Lab File ID: SD18/22A  
EAK Batch ID: LP0312W  
Calib. Ref.: SD18503A

Date Collected: 06/12/05  
Date Received: 06/14/05  
Date Attached: 06/14/05 13:00  
Date Arrived: 06/16/05 09:47  
Dilution Factor: 05  
Matrix : WATER  
? Anticure : NA  
Instruments : GC/MSD

[illegible]

Left: Reporting Unit  
Left: 04 is related to first column; Right: 01 is related to second column  
0 is included and reported column

5635260/202  
 POST C11825

Client : EMAX TSCA PA, INC.  
 Project : MIA, SITE 1, CTO No.  
 Batch No. : 050608  
 Sample ID: 06-01-110  
 Lab Name ID: 0005-R  
 Lab Site ID: 0010020A  
 Est Batch ID: 0700120  
 Calib. Ref.: 00100306  
 Date Sampled: 04/12/05  
 Date Received: 04/14/05  
 Date Extracted: 04/14/05 15:04  
 Date Analyzed: 04/18/05 09:07  
 Dilution Factor: 50  
 Matrix: WATER  
 Method: NA  
 Instrument ID: 020002

| PARAMETERS                    | RESULTS<br>(ug/L) | SL<br>(ug/L) | PSL<br>(ug/L) |
|-------------------------------|-------------------|--------------|---------------|
| ALPHA-BHC                     | (ND)ND            | .047         | .0094 .0094   |
| GAMMA-BHC (LIMBANE)           | (ND)ND            | .047         | .0094 .0094   |
| BETA-BHC                      | (ND)0.010         | .047         | .0094 .0094   |
| DELTA-BHC                     | (ND)ND            | .047         | .0094 .0094   |
| ALDRIN                        | (ND)ND            | .047         | .0094 .0094   |
| HEPTACHLOR EPOXIDE            | (ND)ND            | .047         | .0094 .0094   |
| GAMMA-CHLORDAE                | (ND)ND            | .047         | .0094 .0094   |
| ALPHA-CHLORDAE                | (ND)ND            | .047         | .0094 .0094   |
| ENDOSULFAN I                  | (ND)ND            | .094         | .019 .019     |
| 1,4'-DDE                      | (ND)ND            | .094         | .019 .019     |
| HEXACHLOR                     | (ND)ND            | .094         | .019 .019     |
| ENDOSULFAN II                 | (ND)ND            | .094         | .019 .019     |
| 1,4'-DDT                      | (ND)ND            | .094         | .019 .019     |
| NONACHLOR                     | (ND)ND            | .094         | .019 .019     |
| ENDOSULFAN SULFATE            | (ND)ND            | .094         | .019 .019     |
| ENDLER PESTICIDE              | (ND)ND            | .47          | .094 .094     |
| METHOXYCHLOR                  | (ND)ND            | 2.0          | 1.2 1.2       |
| THIOPHOS                      | (ND)ND            |              |               |
| SUBSTRATE PARAMETERS          | % RECOVERY        | DE LIMIT     |               |
| 1,1,1,2,2,2-PENTACHLOROETHANE | 49 72             | 50-120       |               |
| 1,1,1,2,2,2-PENTACHLOROETHANE | 49 72             | 50-120       |               |

0.05 Reporting Limit  
 Left of 0 is reported as First column; Right of 0 is related to Second column  
 1 : Included the method column

SW3520C/8581A  
PESICIDES

Client : TETRA TECH FU, INC.  
Project : HFA, SITE 1, CTO SW  
Suite No. : 080908  
Sample ID : 80-51-10  
Lab Stamp ID: 80045-05  
Lab ID: 5019004A  
Est. Ready ID: 6001010  
Colth. Ref.: 50180034  
Date Collected: 06/15/08  
Date Analyzed: 06/16/08  
Batch Collected: 04/14/08 13:00  
Batch Analyzed: 06/18/08 21:00  
Detection Method: MS  
Matrix : WATER  
# of Samples: 10  
Instrument ID : 500000

[illegible]

BL = Reporting limit  
 Left of | = related to first return; Right of | related to second return  
 ( ) indicates the repaired column

9453201/8991A  
FES11C1JES

Client: 12700 - PFCB 1st, USA  
Project: 12700 - PFCB 1st, CTO 2nd  
Web Ref.: 637620  
Sample ID: 85-51-12700  
Lab Name: 12700-008-005  
Lab File ID: 12700-008-005  
Lab Code: 12700-008-005  
Lab Ref.: 12700-008-005

Date: 01/15/05  
Date Received: 01/15/05  
Date Examined: 01/15/05 13:00  
Date Analyzed: 01/18/05 19:00  
Detection Method: .38  
Matrix: WATER  
% Moisture: 84  
Inst/Anly ID: 621008

[illegible]

$T_n$  : Reported  $TIR$   
 $ARL(n)$  :  $n$  responses to first column ; Right of , related to specked column  
 $t_n$  : related the reported return

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 050068

SW3520C/S082  
PCBs

Five (5) water samples were received on 04/14/05 for PCBs analysis by Method 3520C/8082 in accordance with "Test Methods for Evaluating Solid Waste Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Instrument Performance and Calibration**

Initial calibration was five points for PCB-1016 and PCB-1260, all RSDs were within 20%. All continue calibrations were analyzed at 12 hour interval and all recoveries were within 95-115%.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

All recoveries were within QC limits.

**6. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

543570G/8082  
SCBs

Client : RETRA TECH INC.      Date Collected: 04/13/05  
Project : MFA, SITE 1, CTD 86      Date Received: 04/14/05  
Batch No. : 050369      Date Extracted: 04/14/05 13:00  
Sample ID: 86-24-110      Date Analyzed: 04/18/05 23:17  
Lab Sample ID: 0068-02      Dilution Factor: .96  
Lab File ID: SD78021A      Matrix : WATER  
Ext Batch ID: 000010M      % Moisture : NA  
Qual. Ref.: SD180064      Instrument ID : 631003

| PARAMETERS | RESULTS<br>(ug/L) | RL MDL |         |
|------------|-------------------|--------|---------|
|            |                   | (ug/L) | (ug/L)  |
| PCB-1016   | (ND)ND            | .96    | .24 .24 |
| PCB-1221   | (ND)ND            | .96    | .24 .24 |
| PCB-1232   | (ND)ND            | .96    | .24 .24 |
| PCB-1262   | (ND)ND            | .96    | .24 .24 |
| PCB-1268   | (ND)ND            | .96    | .24 .24 |
| PCB-1274   | (ND)ND            | .96    | .24 .24 |
| PCB-1280   | (ND)ND            | .96    | .24 .24 |

| SURROGATE PARAMETERS | RECOVERY | QC LIMIT |  |
|----------------------|----------|----------|--|
|                      |          |          |  |
| TETRACHLORO-P XYLENE | (76)96   | 30-100   |  |
| DICHLORODIPHENYL     | (93)91   | 30-130   |  |

RI: Reporting Limit  
Left of | is related to first column; Right of | related to second column  
( ) indicates the reported value  
→ far side of QC Limit



SW352CC/BCB2  
 PCBs

Client : TETRA TECH. FW, INC. Date Collected: 04/12/05  
 Project : MVA, SITE 1, CTO 85 Date Received: 04/14/05  
 Batch No. : 050068 Date Analyzed: 04/14/05 15:40  
 Sample ID: 3A-S1-117 Dilution Factor: .95  
 Lab Comp ID: 0059-03 Matrix : WATER  
 Lab File ID: 20160229 % Moisture : NP  
 Ext. Batch ID: 005018 Instrument ID : GUTIGR  
 Cat# ID, Ref.: SD19000A

| PARAMETERS                | RESULTS<br>(ug/L) | RL<br>(ug/L) | MDL<br>(ug/L) |
|---------------------------|-------------------|--------------|---------------|
| PCB-1016                  | (ND) ND           | .95          | .24 .24       |
| PCB-1221                  | (ND) ND           | .95          | .24 .24       |
| PCB-1252                  | (ND) ND           | .95          | .24 .24       |
| PCB-1262                  | (ND) ND           | .95          | .24 .24       |
| PCB-1294                  | (ND) ND           | .95          | .24 .24       |
| PCB-1296                  | (ND) ND           | .95          | .24 .24       |
| SUMMARY PARAMETERS        |                   |              |               |
|                           |                   | % RECOVERY   | QC LIMIT      |
| TETRACHLORO-P-CYCLINE     |                   | (76) 83      | 30-130        |
| HECACHLOROCYCLOPENTADIENE |                   | (90) 89      | 30-130        |

RL: Reporting Limit

Left of | is related to first column; Right of | related to second column

- : Included the reporting limit

\* Out side of QC limit

8435266/8062  
 PCBs

Client : TETRA TECH INC.  
 Project : MIA, SITE 1, GIC 85  
 Batch No. : 000068  
 Sample ID : 86-31-110  
 Lab Stamp ID : 0068-05  
 Lab File ID : 8618025A  
 Est Batch ID : 860124  
 Cat No. Rev. : 5019010A

Date Collected: 04/12/05  
 Date Received: 04/14/05  
 Date Extracted: 04/14/05 13:00  
 Date Analyzed: 04/18/05 21:07  
 Dilution Factor: .94  
 Matrix : WATER  
 Moisture : NA  
 Instrument ID : 6CT608

| PARAMETERS | RESULTS<br>(ug/l) | RL<br>(ug/l) | MDL<br>(ug/l) |
|------------|-------------------|--------------|---------------|
| -----      | -----             | -----        | -----         |
| PCB 1016   | (ND) ND           | .94          | .24 .24       |
| PCB 1271   | (ND) ND           | .94          | .24 .24       |
| PCB 1252   | (ND) ND           | .94          | .24 .24       |
| PCB 1242   | (ND) ND           | .94          | .24 .24       |
| PCB 1248   | (ND) ND           | .94          | .24 .24       |
| PCB 1254   | (ND) ND           | .94          | .24 .24       |
| PCB 1260   | (ND) ND           | .94          | .24 .24       |

| SUBSTRATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| -----                | -----      | -----    |
| TETRACHLORO-P XYLENE | (67) 76    | 30-130   |
| DECAChLOROBIPHENYL   | (37) 86    | 30-130   |

RL: Reporting Limit  
 Left of | is related to first column; Right of | related to second column  
 ( ) includes the reported value  
 = Out Side of QC Limit

SM3520C/3092  
 PCBs

CLIENT : TETRA TECH FU, INC. Date Collected: 06/15/95  
 Project : MFA, SITE 1, CTO 86 Dates Analyzed: 06/14/95  
 Batch No. : 050068 Date Extracted: 06/14/95 13:00  
 Sample ID: 86-SF-110 Date Analyzed: 06/18/95 21:52  
 Lab Samp ID: D068-05 Dilution Factor: .95  
 Lab File ID: 0618924A Matrix : WATER  
 Ext Brn ID: CP06124 % PCBs: NA  
 Calib. Ref.: SB70864 Instrument ID : C67006

| PARAMETERS | RESULTS<br>(ug/L) | PL<br>(ug/L) | ML<br>(ug/L) |
|------------|-------------------|--------------|--------------|
| PCB-1016   | (ND)ND            | .95          | .24 .24      |
| PCB-1221   | (ND)ND            | .95          | .24 .24      |
| PCB-1232   | (ND)ND            | .95          | .24 .24      |
| PCB-1242   | (ND)ND            | .95          | .24 .24      |
| PCB-1248   | (ND)ND            | .95          | .24 .24      |
| PCB-1254   | (ND)ND            | .95          | .24 .24      |
| PCB-1260   | (ND)ND            | .95          | .24 .24      |

| CHLORINATE PARAMETERS | % RECOVERY | QC LIMIT |
|-----------------------|------------|----------|
| TETRACHLORO-N-XYLENE  | (57)166    | 28-190   |
| DICHLORODIPHENYL      | (74)172    | 33-130   |

BL: Reporting Limit  
 Left of | is related to first column; Right of | related to second column  
 ( ) Indicate the percent value  
 - Out side of QC limit

03J52001B082  
 PCBs

Client : TETRA TECH INC. Date Collected: 04/13/05  
 Project : MFA, SITE 1, CDO 86 Date Reported: 24/04/05  
 Batch No. : 050068 Date Extracted: 04/14/05 13:00  
 Sample ID: 06-S1-129 Date Analyzed: 04/19/05 21:58  
 Lab Ship ID: 0068196 Dilution Factor: .96  
 Lab File ID: 3018025A Matrix : WATER  
 Ext Pch ID: 090012V % Moisture : NA  
 CatID, Rpt. : 8019006A Instrument ID : GCT008

| PARAMETERS           | RESULTS<br>(ug/L) | RL<br>(ug/L) | MDL<br>(ug/L) |
|----------------------|-------------------|--------------|---------------|
| PCB-1016             | (ND)ND            | .96          | .24   .24     |
| PCB-1221             | (ND)ND            | .96          | .24   .24     |
| PCB-1232             | (ND)ND            | .96          | .24   .24     |
| PCB-1702             | (ND)ND            | .96          | .24   .24     |
| PCB-124B             | (ND)ND            | .96          | .24   .24     |
| PCB-125A             | (ND)ND            | .96          | .24   .24     |
| SURROGATE PARAMETERS |                   |              |               |
|                      | % RECOVERY        | QC LIMIT     |               |
| TETRACHLORO-P-XYLENE | (53)84            | 50-130       |               |
| DIBENZODIOXIN        | (79)97            | 30-130       |               |

RL: Reporting Limit  
 Left of | is related to limit column; Right of | related to second column  
 ( ) included the reported value  
 \* Out side of QC limit

**CASE NARRATIVE**

CLIENT: TETRA TECH FW, INC.  
PROJECT: MFA, SITE 1, CTO 86  
SDG: 05D068

**METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR**

Five (5) water samples were received on 04/14/05 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

1. **Holding Time**  
Analysis met holding time criteria.
2. **Method Blank**  
Method blank was free of contamination at the reporting limit.
3. **Lab Control Sample/Lab Control Sample Duplicate**  
Lab control results were within QC limit.
4. **Serial Dilution / Post-Analytical Spike**  
Sample D061-02 from another SDG was analyzed for serial dilution and post-analytical spike. All QC requirements were met.
5. **Matrix Spike/Matrix Spike Duplicate**  
No MS/MSD sample was designated in this SDG.
6. **Sample Analysis**  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.  
Samples were analyzed at DF20 due to matrix interference.

DATE : 11/24/2010  
TIME : 11:04:17

11/10/00  
 11/10/00  
 11/10/00

Equation (1) can be written as

[illegible]

7003

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86

**Collection Date:** April 12 through April 13, 2005

**LDC Report Date:** May 25, 2005

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05D068

**Sample Identification**

86-S1-123

86-S1-116

86-S1-117

86-S1-118\*\*

86-S1-119

86-S1-120

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for all individual compounds.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

For the purposes of technical evaluation, all compounds were evaluated against the 20.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

#### XVI. Field Duplicates

Samples 86-S1-117 and 86-S1-118\*\* were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

| Compound | Concentration (ug/L) |             | RPD            |
|----------|----------------------|-------------|----------------|
|          | 86-S1-117            | 86-S1-118** |                |
| Acetone  | 10U                  | 4,4         | Not calculable |

#### XVII. Field Blanks

Sample 86-S1-123 was identified as a trip blank. No volatile contaminants were found in this blank.

**Moffett Airfield, MFA Site 1, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 05D068**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 05D068**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 12 through April 13, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05D068

**Sample Identification**

86-S1-116  
86-S1-117  
86-S1-118\*\*  
86-S1-119  
86-S1-120

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

### **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

### **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

### **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

### **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

### **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatiles contaminants were found in the method blanks.

### **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.



#### **XVI. Field Duplicates**

Samples 86-S1-117 and 86-S1-118\*\* were identified as field duplicates. No semivolatiles were detected in any of the samples.

#### **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 05D068**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05D068**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 12 through April 13, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Chlorinated Pesticides  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05D068

**Sample Identification**

86-S1-116  
86-S1-117  
86-S1-118\*\*  
86-S1-119  
86-S1-120

\*\*Indicates sample underwent EPA Level IV review.

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

#### **XIV. Field Duplicates**

Samples 86-S1-117 and 86-S1-118\*\* were identified as field duplicates. No chlorinated pesticides were detected in any of the samples.

#### **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA Site 1, CTO 86**  
**Chlorinated Pesticides - Data Qualification Summary - SDG 05D068**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 05D068**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 12 through April 13, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Polychlorinated Biphenyls  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05D068

**Sample Identification**

86-S1-116  
86-S1-117  
86-S1-118\*\*  
86-S1-119  
86-S1-120

\*\*Indicates sample underwent EPA Level IV review.



## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance data were not provided and therefore not reviewed.

## **III. Initial Calibration**

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **XIV. Field Duplicates**

Samples 86-S1-117 and 86-S1-118\*\* were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.

#### **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA Site 1, CTO 86**

**Polychlorinated Biphenyls - Data Qualification Summary - SDG 05D068**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**

**Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 05D068**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86  
**Collection Date:** April 12 through April 13, 2005  
**LDC Report Date:** May 23, 2005  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc./Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** 05D068/K2502714

**Sample Identification**

86-S1-116  
86-S1-117  
86-S1-118\*\*  
86-S1-119  
86-S1-120  
86-S1-120MS  
86-S1-120DUP

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B and 7000 and EPA Method 200.8 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

| Method Blank ID | Analyte                                                                                                               | Maximum Concentration                                                                                                                                    | Associated Samples                 |
|-----------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| PB (prep blank) | Beryllium<br>Copper<br>Nickel<br>Selenium<br>Iridium<br>Zinc                                                          | 0.00009 ug/L<br>0.0010 ug/L<br>0.031 ug/L<br>0.74 ug/L<br>0.00002 ug/L<br>0.006 ug/L                                                                     | All samples in SDG 05D068/K2502714 |
| ICB/CCB         | Antimony<br>Arsenic<br>Beryllium<br>Cadmium<br>Chromium<br>Cobalt<br>Nickel<br>Selenium<br>Silver<br>Thallium<br>Zinc | 0.014 ug/L<br>0.097 ug/L<br>0.00890 ug/L<br>0.01 ug/L<br>0.071 ug/L<br>0.0040 ug/L<br>0.022 ug/L<br>0.28 ug/L<br>0.01 ug/L<br>0.02500 ug/L<br>0.030 ug/L | All samples in SDG 05D068/K2502714 |

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:



| Sample      | Analyte                                   | Reported Concentration                                | Modified Final Concentration                              |
|-------------|-------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------|
| 86-S1-118   | Antimony<br>Beryllium<br>Selenium         | 0.214 ug/L<br>0.00118 ug/L<br>0.44 ug/L               | 0.214U ug/L<br>0.00118U ug/L<br>0.44U ug/L                |
| 86-S1-117   | Antimony<br>Beryllium<br>Selenium         | 0.204 ug/L<br>0.00052 ug/L<br>0.48 ug/L               | 0.204U ug/L<br>0.00052U ug/L<br>0.48U ug/L                |
| 86-S1-118** | Antimony<br>Selenium                      | 0.202 ug/L<br>0.46 ug/L                               | 0.202U ug/L<br>0.46U ug/L                                 |
| 86-S1-119   | Antimony<br>Cadmium<br>Selenium<br>Silver | 0.252 ug/L<br>0.0056 ug/L<br>0.44 ug/L<br>0.0031 ug/L | 0.252U ug/L<br>0.0056U ug/L<br>0.44U ug/L<br>0.0031U ug/L |
| 86-S1-120   | Antimony<br>Selenium<br>Silver            | 0.312 ug/L<br>0.54 ug/L<br>0.0029 ug/L                | 0.312U ug/L<br>0.54U ug/L<br>0.0029U ug/L                 |

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

| Spike ID<br>(Associated Samples)                       | Analyte                        | %R (Limits)                               | Flag                                    | A or P |
|--------------------------------------------------------|--------------------------------|-------------------------------------------|-----------------------------------------|--------|
| 86-S1-110MS<br>(All samples in SDG<br>05D068/K2502714) | Arsenic<br>Beryllium<br>Copper | 56 (75-125)<br>69 (75-125)<br>73 (75-125) | J (all detects)<br>UJ (all non-detects) | A      |

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits for samples on which a EPA Level IV review was performed with the following exceptions:

| Sample      | Internal Standard                                         | %R (Limits)                                      | Analyte                                                                                              | Flag                                    | A or P |
|-------------|-----------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------|--------|
| 86-S1-118** | Nickel-61<br>Indium-115 (4/29/05)<br>Indium-115 (4/25/05) | 139 (60-125)<br>134.7 (60-125)<br>167.4 (60-125) | Nickel<br>Arsenic<br>Calcium<br>Chromium<br>Cobalt<br>Copper<br>Silver<br>Zinc<br>Antimony<br>Barium | J (all detects)<br>UJ (all non-detects) | P      |

Raw data were not evaluated for the samples reviewed by Level III criteria.

### IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for samples reviewed by Level III criteria.

### X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

### XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

| Sample                             | Analyte  | Finding                                                 | Criteria                                         | Flag | A or P |
|------------------------------------|----------|---------------------------------------------------------|--------------------------------------------------|------|--------|
| All samples in SDG 05D068-K2502714 | Antimony | Laboratory method detection limit reported at 0.12 ug/L | MDL should be reported at 0.05 ug/L per the QAPP | None | P      |
| All samples in SDG 05D068-K2502714 | Barium   | Laboratory method detection limit reported at 0.60 ug/L | MDL should be reported at 0.05 ug/L per the QAPP | None | P      |

Raw data were not evaluated for samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## XIII. Field Duplicates

Samples 86-S1-117 and 86-S1-118\*\* were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

| Compound  | Concentration (ug/L) |             | RPD            |
|-----------|----------------------|-------------|----------------|
|           | 86-S1-117            | 86-S1-118** |                |
| Antimony  | 0.204                | 0.202       | 1              |
| Arsenic   | 2.090                | 1.770       | 17             |
| Barium    | 130                  | 130         | 0              |
| Beryllium | 0.00052              | 0.00009U    | Not calculable |
| Cadmium   | 0.0063               | 0.0413      | 8              |
| Chromium  | 0.263                | 0.257       | 2              |
| Cobalt    | 2.7400               | 2.4000      | 13             |
| Copper    | 0.3290               | 0.4340      | 26             |
| Lead      | 0.007                | 0.020       | 96             |
| Nickel    | 5.410                | 5.270       | 3              |
| Selenium  | 0.48                 | 0.46        | 4              |
| Silver    | 0.0150               | 0.0151      | 1              |
| Zinc      | 6.460                | 7.150       | 10             |

## XIV. Field Blanks

No field blanks were identified in this SDG.

**Moffett Air Field, Site 1, CTO 86**
**Metals - Data Qualification Summary - SDG 05D068/K2502714**

| SDG                 | Sample                                                          | Analyte                                                                                              | Flag                                    | A or P | Reason                     |
|---------------------|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------|--------|----------------------------|
| 05D068/<br>K2502714 | 86-S1-116<br>86-S1-117<br>86-S1-118**<br>86-S1-119<br>86-S1-120 | Arsenic<br>Beryllium<br>Copper                                                                       | J (all detects)<br>UJ (all non-detects) | A      | Matrix spike analysis (%R) |
| 05D068/<br>K2502714 | 86-S1-118**                                                     | Nickel<br>Arsenic<br>Cadmium<br>Chromium<br>Cobalt<br>Copper<br>Silver<br>Zinc<br>Antimony<br>Barium | J (all detects)<br>UJ (all non-detects) | P      | Internal standards (%R)    |
| 05D068/<br>K2502714 | 86-S1-116<br>86-S1-117<br>86-S1-118**<br>86-S1-119<br>86-S1-120 | Antimony<br>Barium                                                                                   | None<br>None                            | P      | Sample result verification |

**Moffett Air Field, Site 1, CTO 86**
**Metals - Laboratory Blank Data Qualification Summary - SDG 05D068/K2502714**

| SDG                 | Sample      | Analyte                                   | Modified Final Concentration                              | A or P |
|---------------------|-------------|-------------------------------------------|-----------------------------------------------------------|--------|
| 05D068/<br>K2502714 | 86-S1-116   | Antimony<br>Beryllium<br>Selenium         | 0.214U ug/L<br>0.00118U ug/L<br>0.44U ug/L                | A      |
| 05D068/<br>K2502714 | 86-S1-117   | Antimony<br>Beryllium<br>Selenium         | 0.204U ug/L<br>0.00052U ug/L<br>0.48U ug/L                | A      |
| 05D068/<br>K2502714 | 86-S1-118** | Antimony<br>Selenium                      | 0.202U ug/L<br>0.46U ug/L                                 | A      |
| 05D068/<br>K2502714 | 86-S1-119   | Antimony<br>Cadmium<br>Selenium<br>Silver | 0.252U ug/L<br>0.0056U ug/L<br>0.44U ug/L<br>0.0031U ug/L | A      |
| 05D068/<br>K2502714 | 86-S1-120   | Antimony<br>Selenium<br>Silver            | 0.312U ug/L<br>0.54U ug/L<br>0.0029U ug/L                 | A      |





LABORATORIES, INC.  
1325 W. 208th Street  
Torrance, CA 90501  
Tel: (310) 678-8888  
Fax: (310) 678-0816

Re: 11-05-2009  
7840 Beach Ave., 905036

Attn: Lyle Johnson

Tetra Tech, Inc.  
1540 E. 20th Ave., Suite 270  
Santa Ana, CA 92706

Re: Laboratory Report  
Project: MFA, Title 1, CTO 46

Included in the laboratory report for samples received on 10/06/09,  
the data reported include:

| Sample ID | Container | Q        | Q#     | Q#       | Q#     | Q#       |
|-----------|-----------|----------|--------|----------|--------|----------|
| 50-01-122 | 100-01    | 10/04/09 | 100-01 | 10/04/09 | 100-01 | 10/04/09 |
| 50-01-123 | 100-02    | 10/04/09 | 100-02 | 10/04/09 | 100-02 | 10/04/09 |
| 50-01-124 | 100-03    | 10/04/09 | 100-03 | 10/04/09 | 100-03 | 10/04/09 |

Note: Dissolved metals in water & waste was sub-sampled for Columbia and will be submitted at a later date.  
The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

*[Signature]*  
Don J. King, M.S.  
Laboratory Director

CASE NARRATIVE

CLIENT: TETRA TECH ED, INC.  
PROJECT: MPA, SITE 1, CTO 86  
SOG: 893028

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

Three (3) water samples were received on 10/03/05 for Volatile Organic Analysis by Method 5030B/8260B in accordance with USEPA SW516, 3<sup>rd</sup> ed.

1. **Holding Time**  
Analytical holding time was met.
2. **Tuning and Calibration**  
Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.
3. **Method Blank**  
Method Blank was free of contamination at the reporting limit.
4. **Surrogate Recovery**  
Recoveries were within QC limit.
5. **Lab Control Sample/Lab Control Sample Duplicate**  
Recoveries were within QC limit.
6. **Matrix Spike/Matrix Spike Duplicate**  
No MS/MSD sample was designated in this SOG.
7. **Sample Analysis**  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.

**DETERMINATION  
VOLATILE ORGANICS IN OILS**

ANALYST: J. J. JONES, JR. DATE: 10/24/85  
CLIENT: J. J. JONES, JR. DATE: 10/24/85  
PROJECT: J. J. JONES, JR. DATE: 10/24/85  
ANALYST: J. J. JONES, JR. DATE: 10/24/85  
CLIENT: J. J. JONES, JR. DATE: 10/24/85  
PROJECT: J. J. JONES, JR. DATE: 10/24/85  
ANALYST: J. J. JONES, JR. DATE: 10/24/85  
CLIENT: J. J. JONES, JR. DATE: 10/24/85  
PROJECT: J. J. JONES, JR. DATE: 10/24/85

| NUMERICAL               | CONCENTRATION | UNIT |
|-------------------------|---------------|------|
| 1. 1,1-DICHLOROETHANE   | 100           | PPM  |
| 2. 1,1-DICHLOROETHANE   | 100           | PPM  |
| 3. 1,1-DICHLOROETHANE   | 100           | PPM  |
| 4. 1,1-DICHLOROETHANE   | 100           | PPM  |
| 5. 1,1-DICHLOROETHANE   | 100           | PPM  |
| 6. 1,1-DICHLOROETHANE   | 100           | PPM  |
| 7. 1,1-DICHLOROETHANE   | 100           | PPM  |
| 8. 1,1-DICHLOROETHANE   | 100           | PPM  |
| 9. 1,1-DICHLOROETHANE   | 100           | PPM  |
| 10. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 11. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 12. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 13. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 14. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 15. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 16. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 17. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 18. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 19. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 20. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 21. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 22. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 23. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 24. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 25. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 26. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 27. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 28. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 29. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 30. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 31. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 32. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 33. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 34. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 35. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 36. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 37. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 38. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 39. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 40. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 41. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 42. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 43. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 44. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 45. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 46. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 47. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 48. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 49. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 50. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 51. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 52. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 53. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 54. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 55. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 56. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 57. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 58. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 59. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 60. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 61. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 62. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 63. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 64. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 65. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 66. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 67. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 68. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 69. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 70. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 71. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 72. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 73. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 74. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 75. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 76. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 77. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 78. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 79. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 80. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 81. 1,1-DICHLOROETHANE  | 100           | PPM  |
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| 83. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 84. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 85. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 86. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 87. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 88. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 89. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 90. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 91. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 92. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 93. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 94. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 95. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 96. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 97. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 98. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 99. 1,1-DICHLOROETHANE  | 100           | PPM  |
| 100. 1,1-DICHLOROETHANE | 100           | PPM  |

SUBSTRATE: PARAFFIN  
ANALYST: J. J. JONES, JR.  
CLIENT: J. J. JONES, JR.  
PROJECT: J. J. JONES, JR.  
ANALYST: J. J. JONES, JR.  
CLIENT: J. J. JONES, JR.  
PROJECT: J. J. JONES, JR.  
ANALYST: J. J. JONES, JR.  
CLIENT: J. J. JONES, JR.  
PROJECT: J. J. JONES, JR.



GC-MS REPORT  
VOLATILE COMPONENTS BY GC/MS

CLIENT: TCEM, CHEN, CO., INC.  
Sample No.: 101055  
Date: 10/12/95  
Lab. No.: 101055  
Lab. File: 101055  
Lab. Name: TCEM, CHEN, CO., INC.  
Lab. Address: 101055  
Lab. Phone: 101055  
Lab. Fax: 101055  
Lab. E-Mail: 101055  
Lab. Website: 101055  
Lab. Notes: 101055  
Lab. Comments: 101055

| PARAMETER               | RESULTS | UNIT | CONC |
|-------------------------|---------|------|------|
| 1. 1,1-DICHLOROETHANE   | ND      | mg/L | 0.0  |
| 2. 1,1-DICHLOROETHANE   | ND      | mg/L | 0.0  |
| 3. 1,1-DICHLOROETHANE   | ND      | mg/L | 0.0  |
| 4. 1,1-DICHLOROETHANE   | ND      | mg/L | 0.0  |
| 5. 1,1-DICHLOROETHANE   | ND      | mg/L | 0.0  |
| 6. 1,1-DICHLOROETHANE   | ND      | mg/L | 0.0  |
| 7. 1,1-DICHLOROETHANE   | ND      | mg/L | 0.0  |
| 8. 1,1-DICHLOROETHANE   | ND      | mg/L | 0.0  |
| 9. 1,1-DICHLOROETHANE   | ND      | mg/L | 0.0  |
| 10. 1,1-DICHLOROETHANE  | ND      | mg/L | 0.0  |
| 11. 1,1-DICHLOROETHANE  | ND      | mg/L | 0.0  |
| 12. 1,1-DICHLOROETHANE  | ND      | mg/L | 0.0  |
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| 97. 1,1-DICHLOROETHANE  | ND      | mg/L | 0.0  |
| 98. 1,1-DICHLOROETHANE  | ND      | mg/L | 0.0  |
| 99. 1,1-DICHLOROETHANE  | ND      | mg/L | 0.0  |
| 100. 1,1-DICHLOROETHANE | ND      | mg/L | 0.0  |

SUBSTRATE PARAMETERS  
1. 2-DICHLOROETHANE  
2. 2-DICHLOROETHANE  
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99. 2-DICHLOROETHANE  
100. 2-DICHLOROETHANE



**CASE NARRATIVE**

CLIENT: TETRA TECH EC, INC.  
PROJECT: MFA, SITE 1, CTO 80  
SDG: 06J036

**SW 3520/8270C  
SEMI VOLATILE ORGANICS BY GC/MS**

Two (2) water samples were received on 10/06/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA 517/046, 3<sup>rd</sup> ed.

1. **Holding Time**  
Analytical holding time was met.
2. **Tuning and Calibration**  
Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.
3. **Method Blank**  
Method blank was free of contamination at the reporting limit.
4. **Surrogate Recovery**  
Recoveries were within QC limit.
5. **Lab Control Sample/Lab Control Sample Duplicate**  
Recoveries were within QC limit.
6. **Matrix Spike/Matrix Spike Duplicate**  
No MS/MSD sample was designated in the SDG.
7. **Sample Analysis**  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.



ON SPECIFICATION  
SOME VOLATILE ADDITIONS BY NAME

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TESTER: J. L. L.      DATE: 01/10/2010      TIME: 10:00  
 SAMPLE: 101      DATE: 01/10/2010      TIME: 10:00  
 ANALYST: J. L. L.      DATE: 01/10/2010      TIME: 10:00  
 INSTRUMENT: 101      DATE: 01/10/2010      TIME: 10:00  
 METHOD: 101      DATE: 01/10/2010      TIME: 10:00  
 COMMENTS: 101      DATE: 01/10/2010      TIME: 10:00

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| PARAMETER                | RESULT | UNIT | REF. |
|--------------------------|--------|------|------|
| 1. 1,1-DICHLOROETHANE    | 10.0   | g/g  | 1.0  |
| 2. 1,1-DICHLOROPOLYMER   | 10.0   | g/g  | 1.0  |
| 3. 1,1-DICHLOROPOLYMER   | 10.0   | g/g  | 1.0  |
| 4. 1,1-DICHLOROPOLYMER   | 10.0   | g/g  | 1.0  |
| 5. 1,1-DICHLOROPOLYMER   | 10.0   | g/g  | 1.0  |
| 6. 1,1-DICHLOROPOLYMER   | 10.0   | g/g  | 1.0  |
| 7. 1,1-DICHLOROPOLYMER   | 10.0   | g/g  | 1.0  |
| 8. 1,1-DICHLOROPOLYMER   | 10.0   | g/g  | 1.0  |
| 9. 1,1-DICHLOROPOLYMER   | 10.0   | g/g  | 1.0  |
| 10. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 11. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 12. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 13. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 14. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 15. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 16. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 17. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 18. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 19. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 20. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 21. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 22. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 23. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
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| 31. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 32. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 33. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
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| 37. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
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| 41. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 42. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 43. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
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| 96. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 97. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 98. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 99. 1,1-DICHLOROPOLYMER  | 10.0   | g/g  | 1.0  |
| 100. 1,1-DICHLOROPOLYMER | 10.0   | g/g  | 1.0  |

ALL RESULTS IN g/g  
 (1) Cannot be simulated from 5-methylpentane  
 (2) Cannot be simulated from 5-methylpentane

# CASE NARRATIVE

CLIENT: TETRA TECH, INC.  
 PROJECT: BFA, SITE 1, CTO #6  
 SDO: 05J036

SVS200/8081A  
 PESTICIDES

Two (2) water samples were received on 10/09/05 for Pesticides analysis by Method SVS200/8081A in accordance with "Test Methods for Evaluating Solid Waste, Physical-Chemical Methods", SW-846, 3<sup>rd</sup> ed.

## 1. Holding Time

Analysis/holding time was met.

## 2. Instrument Performance and Calibration

Initial calibration was at five-point for Pesticides, all RSDs were within 20%. All continuous calibrations were analyzed at 12-hour intervals and mean recoveries were within 85-115%. Endrin and DDT breakdown were within QC limits.

## 3. Method Blank

Method blank was free of contamination at the reporting limit.

## 4. Surrogate Recovery

Recoveries were within QC limit.

## 5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

## 6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDO.

## 7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All QC criteria were met.

When sample results are confirmed by a second column, the relative percentage difference (RPD) between the two results is calculated. If RPD is less than 40%, and no evidence of chromatographic problems, the higher result is reported. If RPD is greater than 40%, the chromatogram is checked for anomalies and results are selected based on the best professional judgement. If no evidence of any chromatographic problems, the higher result is reported.







**CASE NARRATIVE**

**CLIENT:** TETRA TECH EC, INC.  
**PROJECT:** MFA, SITE 1, CTO 89  
**SDG:** 95J036

**METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR**

Two (2) water samples were received on 10/06/05 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, 3<sup>rd</sup> edition.

1. **Holding Time**  
Analysis met holding time criteria.
2. **Method Blank**  
Method Blank was free of contamination at the reporting limit.
3. **Lab Control Sample/Lab Control Sample Duplicate**  
Lab control results were within QC limit.
4. **Serial Dilution / Post-Analytical Spike**  
Sample J053-10 from another SDG was analyzed for serial dilution and post-analytical spike. All QC requirements were met.
5. **Matrix Spike/Matrix Spike Duplicate**  
N/A (SDG sample was not designated as this SDG).
6. **Sample Analysis**  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.  
  
Samples were initially analyzed at DF 20 due to matrix interference of high salt level.



**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86

**Collection Date:** October 4, 2005

**LDC Report Date:** November 17, 2005

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J036

**Sample Identification**

86-S1-137

86-S1-124

86-S1-125

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination ( $r^2$ ) were greater than or equal to 0.990 .

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all volatile target compounds were within method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 25.0% for all compounds.

All of the continuing calibration RRF values were within method and validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation and CRQLs**

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

#### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

#### **XVII. Field Blanks**

Sample 86-S1-137 was identified as a trip blank. No volatile contaminants were found in this blank.

**Moffett Air Field, Site 1, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 05J036**

No Sample Data Qualified in this SDG

**Moffett Air Field, Site 1, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 05J036**

No Sample Data Qualified in this SDG



**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86

**Collection Date:** October 4, 2005

**LDC Report Date:** November 17, 2005

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** EPA Level III

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J036

**Sample Identification**

86-S1-124

86-S1-125

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination ( $r^2$ ) were greater than or equal to 0.990 .

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all semivolatile target compounds were within method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

| Date     | Compound                    | %D   | Associated Samples           | Flag                                    | A or P |
|----------|-----------------------------|------|------------------------------|-----------------------------------------|--------|
| 10/14/05 | Bis(2-chloroisopropyl)ether | 34.9 | All samples in SDG<br>05J036 | J (all detects)<br>UJ (all non-detects) | A      |
|          | 2,4-Dinitrophenol           | 33.8 |                              |                                         |        |
|          | 4-Nitrophenol               | 25.5 |                              |                                         |        |
|          | Benzo(k)fluoranthene        | 33.6 |                              |                                         |        |

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 25.0% for all compounds.

All of the continuing calibration RRF values were within method and validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation and CRQLs**

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Air Field, Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 05J036**

| SDG    | Sample                 | Compound                                                                                  | Flag                                    | A or P | Reason                         |
|--------|------------------------|-------------------------------------------------------------------------------------------|-----------------------------------------|--------|--------------------------------|
| 04J036 | 86-S1-124<br>86-S1-125 | Bis(2-chloroisopropyl)ether<br>2,4-Dinitrophenol<br>4-Nitrophenol<br>Benzo(k)fluoranthene | J (all detects)<br>UU (all non-detects) | A      | Continuing calibration<br>(%D) |

**Moffett Air Field, Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05J036**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86

**Collection Date:** October 4, 2005

**LDC Report Date:** November 17, 2005

**Matrix:** Water

**Parameters:** Chlorinated Pesticides

**Validation Level:** EPA Level III

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J036

**Sample Identification**

86-S1-124

86-S1-125

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

## III. Initial Calibration

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

## IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits with the following exceptions:

| Date     | Standard    | Column       | Compound | %D | Associated Samples        | Flag                                    | A or P |
|----------|-------------|--------------|----------|----|---------------------------|-----------------------------------------|--------|
| 10/13/05 | SJ13003B/4B | RTX-CLPESTII | beta-BHC | 19 | All samples in SDG 04J036 | J (all detects)<br>UJ (all non-detects) | A      |

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

The individual 4,4'-DDT and Endrin breakdowns were less than 15.0% .

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation and Reported CRQLs**

Raw data were not reviewed for this SDG.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XIV. Field Duplicates**

No field duplicates were identified in this SDG.

## **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**

**Chlorinated Pesticides - Data Qualification Summary - SDG 05J036**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**

**Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 05J036**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86

**Collection Date:** October 4, 2005

**LDC Report Date:** November 17, 2005

**Matrix:** Water

**Parameters:** Polychlorinated Biphenyls

**Validation Level:** EPA Level III

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J036

**Sample Identification**

86-S1-124

86-S1-125

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance data were not provided and therefore not reviewed.

## **III. Initial Calibration**

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation and Reported CRQLs**

Raw data were not reviewed for this SDG.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XIV. Field Duplicates**

No field duplicates were identified in this SDG.

## **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**  
**Polychlorinated Biphenyls - Data Qualification Summary - SDG 05J036**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**  
**Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 05J036**

No Sample Data Qualified in this SDG



**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86

**Collection Date:** October 4, 2005

**LDC Report Date:** November 14, 2005

**Matrix:** Water

**Parameters:** Dissolved Mercury

**Validation Level:** EPA Level III

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J036

**Sample Identification**

86-S1-124

86-S1-125

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

ICP was not utilized in this SDG.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

| Spike ID<br>(Associated<br>Samples)            | Analyte           | MS (%R)<br>(Limits) | MSD (%R)<br>(Limits) | RPD<br>(Limits) | Flag                                    | A or P |
|------------------------------------------------|-------------------|---------------------|----------------------|-----------------|-----------------------------------------|--------|
| 86-S1-128MS/MSD<br>(All samples in SDG 05J036) | Dissolved mercury | -                   | 67 (75-125)          | -               | J (all detects)<br>UJ (all non-detects) | A      |

## VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standards

ICP-MS was not utilized in this SDG.

#### **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

#### **X. ICP Serial Dilution**

ICP serial dilution was not performed for this SDG.

#### **XI. Sample Result Verification**

Raw data were not reviewed for this SDG.

#### **XII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

#### **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

#### **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Air Field, Site 1, CTO 86**

**Dissolved Mercury - Data Qualification Summary - SDG 05J036**

| SDG    | Sample                 | Analyte           | Flag                                    | A or P | Reason                                       |
|--------|------------------------|-------------------|-----------------------------------------|--------|----------------------------------------------|
| 05J036 | 86-S1-124<br>86-S1-125 | Dissolved mercury | J (all detects)<br>JJ (all non-detects) | A      | Matrix spike/Matrix spike<br>duplicates (%R) |

**Moffett Air Field, Site 1, CTO 86**

**Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 05J036**

No Sample Data Qualified in this SDG



**TETRA TECH**

12301 Central Expressway, Suite 200  
San Diego, CA 92121 619.234.8999

**CHAIN-OF-CUSTODY RECORD**

NUMBER **10839**

| PROJECT NAME<br><u>San Diego Water Agency</u>                                                        |                | PURCHASE ORDER NO.<br><u>20-03 14725</u>            |                 | ANALYSES REQUIRED |   |   |   |   |   |   |   |   |            | LABORATORY NAME<br><u>L. MAY</u>                   |           | Project Information<br>Section<br>Do not submit to<br>Laboratory |  |
|------------------------------------------------------------------------------------------------------|----------------|-----------------------------------------------------|-----------------|-------------------|---|---|---|---|---|---|---|---|------------|----------------------------------------------------|-----------|------------------------------------------------------------------|--|
| PROJECT LOCATION<br><u>San Diego</u>                                                                 |                | PROJECT NO.<br><u>150 040</u>                       |                 |                   |   |   |   |   |   |   |   |   |            | LABORATORY ID<br>(FOR LABORATORY)<br><u>05J063</u> |           |                                                                  |  |
| SAMPLER NAME<br><u>San Diego</u>                                                                     |                | ANALYST NUMBER<br><u>SA1415934</u>                  |                 |                   |   |   |   |   |   |   |   |   |            |                                                    |           |                                                                  |  |
| PROJECT CONTACT<br><u>John 14725</u>                                                                 |                | PROJECT CONTACT PHONE NUMBER<br><u>714-750-7426</u> |                 |                   |   |   |   |   |   |   |   |   |            |                                                    |           |                                                                  |  |
| SAMPLE ID                                                                                            | DATE COLLECTED | TIME COLLECTED                                      | NO OF CONTAINER | LEVEL             |   |   | T |   |   | T |   |   | LOCATION   | DEPTH START                                        | DEPTH END | QC                                                               |  |
|                                                                                                      |                |                                                     |                 | 3                 | 4 | 5 | 1 | 2 | 3 | 1 | 2 | 3 |            |                                                    |           |                                                                  |  |
| 1                                                                                                    | 10/15/11       | 10:15                                               | 5               | X                 | X | X | X | X | X | X | X | X | Trap Blank |                                                    |           |                                                                  |  |
| 2                                                                                                    | 10/15/11       | 10:15                                               | 7               | X                 | X | X | X | X | X | X | X | X | W1-5       |                                                    |           |                                                                  |  |
| 3                                                                                                    | 10/15/11       | 10:15                                               | 7               | X                 | X | X | X | X | X | X | X | X | W1-5       |                                                    |           |                                                                  |  |
| 4                                                                                                    | 10/15/11       | 10:15                                               | 7               | X                 | X | X | X | X | X | X | X | X | W1-8       |                                                    |           |                                                                  |  |
| 5                                                                                                    | 10/15/11       | 10:15                                               | 7               | X                 | X | X | X | X | X | X | X | X | W1-8       |                                                    |           |                                                                  |  |
| 6                                                                                                    | 10/15/11       | 10:15                                               | 7               | X                 | X | X | X | X | X | X | X | X | W1-24      |                                                    |           |                                                                  |  |
| 7                                                                                                    | 10/15/11       | 10:15                                               | 7               | X                 | X | X | X | X | X | X | X | X | W1-16      |                                                    |           |                                                                  |  |
| <b>LABORATORY INSTRUCTIONS/COMMENTS</b><br><u>20-03 14725 = Extended 2-1</u>                         |                |                                                     |                 |                   |   |   |   |   |   |   |   |   |            |                                                    |           |                                                                  |  |
| <b>COMPOSITE DESCRIPTION</b>                                                                         |                |                                                     |                 |                   |   |   |   |   |   |   |   |   |            |                                                    |           |                                                                  |  |
| <b>SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)</b>                                                |                |                                                     |                 |                   |   |   |   |   |   |   |   |   |            |                                                    |           |                                                                  |  |
| TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN |                |                                                     |                 |                   |   |   |   |   |   |   |   |   |            |                                                    |           |                                                                  |  |
| COOLER SEAL <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN                          |                |                                                     |                 |                   |   |   |   |   |   |   |   |   |            |                                                    |           |                                                                  |  |
| <b>SAMPLING COMMENT:</b><br><u>Silica Sewer Area</u><br><u>10/05</u><br><u>Oct. 2005</u>             |                |                                                     |                 |                   |   |   |   |   |   |   |   |   |            |                                                    |           |                                                                  |  |



1230 Columbia Street, Suite 500  
San Jose, CA 95101 (619) 234-8696

1230 Corporate Plaza, Suite 100  
San Mateo, CA 92101 415/931-2344-M696

## CHAIN-OF-CUSTODY RECORD

NUMBER  
4535

১০  
 ১১  
 ১২  
 ১৩  
 ১৪

SAMPLING COMMENT:  
Site 1 Saw sev  
14/10/05  
Oct., 2005

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management



LABORATORIES, INC.  
 1255 W. 25th Street  
 Redondo Beach, CA 90260  
 Tel: (310) 575-5057  
 Fax: (310) 575-5075

Date: 01-05-2006  
 EMAX Batch No.: 051951

ACCT: Lysyl Jefferson

Coffe Tech Co., Inc.  
 1900 E. 19th Ave. Suite 205  
 Santa Ana, CA 92705

Subject: Laboratory Report  
 Project: HFA, 0115 A, C10 06

Enclosed is the laboratory report for samples received on 06/02/05  
 The data reported herein:

| Sample ID | Container # | Container  | Matrix | Analysis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------|-------------|------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 85-01-129 | 0043-01     | 250mL/0.5L | WATER  | VOLATILE ORGANICS BY GC/MS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 85-01-129 | 0043-02     | 70/30/50   | WATER  | NONVOLATILE ORGANICS BY GC/MS<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>POLYCHLORINATED DIBENZO-P-DIOXINS (PCDDs)<br>POLYCHLORINATED DIBENZOFURANS (PCDFs)<br>POLYCYCLOAROMATIC HYDROCARBONS (PAHs)<br>BROMINATED PCBs BY GC/MS & MS/MS<br>SEMIVOLATILE ORGANICS BY GC/MS<br>VOLATILE ORGANICS BY GC/MS<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>POLYCHLORINATED DIBENZO-P-DIOXINS (PCDDs)<br>POLYCHLORINATED DIBENZOFURANS (PCDFs)<br>POLYCYCLOAROMATIC HYDROCARBONS (PAHs)<br>BROMINATED PCBs BY GC/MS & MS/MS<br>SEMIVOLATILE ORGANICS BY GC/MS<br>VOLATILE ORGANICS BY GC/MS<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>POLYCHLORINATED DIBENZO-P-DIOXINS (PCDDs)<br>POLYCHLORINATED DIBENZOFURANS (PCDFs)<br>POLYCYCLOAROMATIC HYDROCARBONS (PAHs)<br>BROMINATED PCBs BY GC/MS & MS/MS<br>SEMIVOLATILE ORGANICS BY GC/MS<br>VOLATILE ORGANICS BY GC/MS |
| 85-01-132 | 0051-03     | 10/20/50   | WATER  | NONVOLATILE ORGANICS BY GC/MS<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>POLYCHLORINATED DIBENZO-P-DIOXINS (PCDDs)<br>POLYCHLORINATED DIBENZOFURANS (PCDFs)<br>POLYCYCLOAROMATIC HYDROCARBONS (PAHs)<br>BROMINATED PCBs BY GC/MS & MS/MS<br>SEMIVOLATILE ORGANICS BY GC/MS<br>VOLATILE ORGANICS BY GC/MS<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>POLYCHLORINATED DIBENZO-P-DIOXINS (PCDDs)<br>POLYCHLORINATED DIBENZOFURANS (PCDFs)<br>POLYCYCLOAROMATIC HYDROCARBONS (PAHs)<br>BROMINATED PCBs BY GC/MS & MS/MS<br>SEMIVOLATILE ORGANICS BY GC/MS<br>VOLATILE ORGANICS BY GC/MS                                                                                                                                                                                                                                                                        |
| 85-01-133 | 0053-04     | 10/20/50   | WATER  | NONVOLATILE ORGANICS BY GC/MS<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>POLYCHLORINATED DIBENZO-P-DIOXINS (PCDDs)<br>POLYCHLORINATED DIBENZOFURANS (PCDFs)<br>POLYCYCLOAROMATIC HYDROCARBONS (PAHs)<br>BROMINATED PCBs BY GC/MS & MS/MS<br>SEMIVOLATILE ORGANICS BY GC/MS<br>VOLATILE ORGANICS BY GC/MS<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>POLYCHLORINATED DIBENZO-P-DIOXINS (PCDDs)<br>POLYCHLORINATED DIBENZOFURANS (PCDFs)<br>POLYCYCLOAROMATIC HYDROCARBONS (PAHs)<br>BROMINATED PCBs BY GC/MS & MS/MS<br>SEMIVOLATILE ORGANICS BY GC/MS<br>VOLATILE ORGANICS BY GC/MS                                                                                                                                                                                                                                                                        |






| Sample ID   | Control # | Lot Date | Matrix | Analysis                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------|-----------|----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 85-61-12888 | 2853-100  | 10/06/05 | WATER  | DISSOLVED METALS IN WATER (LIMIT)<br>SEMIQUANTITATIVE SCREENING BY ICP/MS<br>RELATIVE QUANTITIES OF COPPER<br>PESTICIDES ORGANOPHOSPHORUS<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>MONOMER DIBENZOIN<br>DISSOLVED METALS IN WATER & WASTE<br>SEMIQUANTITATIVE SCREENING BY ICP/MS<br>VOLATILE AMMONIUM BY GLC/MS<br>PESTICIDES ORGANOPHOSPHORUS<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>MONOMER DIBENZOIN<br>DISSOLVED METALS IN WASTE & WASTE<br>SEMIQUANTITATIVE SCREENING BY ICP/MS |
| 85-61-12888 | 2853-100  | 10/06/05 | WATER  | DISSOLVED METALS IN WATER (LIMIT)<br>SEMIQUANTITATIVE SCREENING BY ICP/MS<br>RELATIVE QUANTITIES OF COPPER<br>PESTICIDES ORGANOPHOSPHORUS<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>MONOMER DIBENZOIN<br>DISSOLVED METALS IN WATER & WASTE<br>SEMIQUANTITATIVE SCREENING BY ICP/MS<br>VOLATILE AMMONIUM BY GLC/MS<br>PESTICIDES ORGANOPHOSPHORUS<br>POLYCHLORINATED BIPHENYLS (PCBS)<br>MONOMER DIBENZOIN<br>DISSOLVED METALS IN WASTE & WASTE<br>SEMIQUANTITATIVE SCREENING BY ICP/MS |

NOTE: Dissolved Metals (I, Copper & Lead) was determined by CVD/MS (I, II) by sampling of a 100 ml water.

The results are summarized in the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

  
John W. King, Ph.D.  
LABORATORY DIRECTOR

**CASE NARRATIVE**

**CLIENT:** TETRA TECH EC, INC.  
**PROJECT:** WFA, SITE 1, CTO #8  
**SDG:** 05J053

**SW 5030B/6260B  
VOLATILE ORGANICS BY GC/MS**

Twelve (12) water samples were received on 10/07/05 for Volatile Organics analysis by Method 5030B/6260B in accordance with USEPA SW846, 3<sup>rd</sup> ed.

1. **Holding Time**  
Analytical holding time was met.
2. **Tuning and Calibration**  
Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.
3. **Method Blank**  
Method blanks were free of contamination at the reporting limit.
4. **Surrogate Recovery**  
Recoveries were within QC limit.
5. **Lab Control Sample/Lab Control Sample Duplicate**  
Recoveries were within QC limit.
6. **Matrix Spike/Matrix Spike Duplicate**  
Sample JCS-10 was spiked. All recoveries were within QC limit.
7. **Sample Analysis**  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.





40507/52604  
MOL. CRYST. LIQ. CRYST., 1998, VOL. 321, NO. 1, 101-105

[illegible][illegible]

```

%1. reported user
%2. out of 0
%3. exceeded available storage
%4. failed to aggregate within time
%5. value between %1 and %2
%6. value from data analysis
%7. failed out

```



04 57338/8268  
VCL 01.2 00001075 FI 00/000

[illegible]









50 5030372280  
WALBY 17 ORGANICS BY DCVMS

|             |                      |                     |               |          |
|-------------|----------------------|---------------------|---------------|----------|
| CLAMP       | = PTFRA 3700 100 000 | Date                | Get Last Date | 10/16/95 |
| Serial      | MFR 3710 1, CYC 00   | Date                | Assigned      | 10/17/95 |
| Battery No. | = 35068              | Date                | Accepted      | 10/16/95 |
| Sample #    | 86-81-150            | Date                | Released      | 10/16/95 |
| Last Sample | 1055.00              | Collection Facility |               |          |
| Lab Name    | 2 0000               | Referral            | 4-PTN         |          |
| Est. Strk   | 10 0000/01           | Reference           | NA            |          |
| CRIME Ref.  | 000000               | Instrument ID       | = 1-005       |          |

[illegible]

| CONTRACT VARIATION        | W. KIDNEY | GC LIMIT |
|---------------------------|-----------|----------|
| 1. 2-DIMENSIONAL TRANS-OS | 1.20      | 1.20     |
| 2. 2-DIMENSIONAL TRANS-OS | 1.01      | 1.01     |
| 3. 2-DIMENSIONAL TRANS-OS | 1.01      | 1.01     |
| 4. 2-DIMENSIONAL TRANS-OS | 1.01      | 1.01     |

```

8.1.1    dropping (m)
          out of Q
          Estimated correlation matrix
          formed as generalized method of
          moments between g(t) and h(t)
          using first diffusion analysis
          figures out

```

DOI: 10.1002/anie.200525498  
 RECEIVED: 2005 12 15  
 ACCEPTED: 2006 01 05

|            |                     |          |                |
|------------|---------------------|----------|----------------|
| Client     | 2014A FCU, SC, INC. | Date     | 10/26/05       |
| Product    | MFA, SFC, LTD, SA   | Rate     | 10/27/05       |
| Broker No. | 001355              | Days     | 10/18/05 00:00 |
| Sample ID  | 00-11-120           | Date     | 10/16/05 09:50 |
| Lab Temp   | 105.5 °C            | Duration | 10:15          |
| Lab Pwr    | 0.5000 W            | Modulus  | 0              |
| Lab Strt   | 0.0000 s            | Modulus  | 0              |
| Lab End    | 0.0000 s            | Modulus  | 0              |

[illegible]

| QUANTITATIVE PARAMETERS | % RECOVERY | GC LIMIT |
|-------------------------|------------|----------|
| 1,2-EPICHLOROHYDRIN     | 100        | 60-100   |
| 1,2-DICHLOROETHANE      | 100        | 100-120  |
| ETHYLENE GLYCOL         | 100        | 100-120  |

- ```

0.11 | separating (yes)
*    | out of 00
0    | Expected calibration interval
0    | found in associated working state
0    | value (range) 0..1, unit: 100
0    | value from calibration analysis
0.12 | obtained over

```





## CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.  
 PROJECT: MFA, SITE 1, CTO 86  
 SDR: 05J053

### SW 8510C/5210C SEMI-VOLATILE ORGANICS BY GC/MS

Ten water samples were received on 10/07/05 for Semi-Volatile Organic analysis by Method 3520C/5210C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

1. **Holding Time**  
 Analytical holding time was met.
2. **Tuning and Calibration**  
 Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.
3. **Method Blank**  
 Method blank was free of contamination at the reporting limit.
4. **Spike/Recovery**  
 Recoveries were within QC limit.
5. **Lab Control/Sample/Blank Control Sample Duplicate**  
 Recoveries were within QC limit.
6. **Matrix Spike/Matrix Spike Duplicate**  
 Sample J053-10 was spiked. All recoveries were within QC limit.
7. **Sample Analysis**  
 Samples were analyzed according to the prescribed QC procedures. All criteria were met.

The last internal standard in sample J053-12 in both 1X and 2X analyses were out of QC, probably due to matrix interference. Both sets of results were reported.





34 31006/02781  
COPY VOLATILE SUBSTANCES OF 24986

ANALYST: J. J. HARRIS, JR. DATE: 10/26/02  
 SAMPLE NO.: 34 31006/02781 DATE: 10/26/02  
 ANALYST: J. J. HARRIS, JR. DATE: 10/26/02  
 INSTRUMENT: GC/MS DATE: 10/26/02  
 METHOD: 10/26/02  
 COMMENTS: 10/26/02

NAME	RT	AREA	CONC
1. 1,1-DICHLOROETHYLENE	1.1	10	10
2. 1,1-DICHLOROETHYLENE	1.1	10	10
3. 1,1-DICHLOROETHYLENE	1.1	10	10
4. 1,1-DICHLOROETHYLENE	1.1	10	10
5. 1,1-DICHLOROETHYLENE	1.1	10	10
6. 1,1-DICHLOROETHYLENE	1.1	10	10
7. 1,1-DICHLOROETHYLENE	1.1	10	10
8. 1,1-DICHLOROETHYLENE	1.1	10	10
9. 1,1-DICHLOROETHYLENE	1.1	10	10
10. 1,1-DICHLOROETHYLENE	1.1	10	10
11. 1,1-DICHLOROETHYLENE	1.1	10	10
12. 1,1-DICHLOROETHYLENE	1.1	10	10
13. 1,1-DICHLOROETHYLENE	1.1	10	10
14. 1,1-DICHLOROETHYLENE	1.1	10	10
15. 1,1-DICHLOROETHYLENE	1.1	10	10
16. 1,1-DICHLOROETHYLENE	1.1	10	10
17. 1,1-DICHLOROETHYLENE	1.1	10	10
18. 1,1-DICHLOROETHYLENE	1.1	10	10
19. 1,1-DICHLOROETHYLENE	1.1	10	10
20. 1,1-DICHLOROETHYLENE	1.1	10	10
21. 1,1-DICHLOROETHYLENE	1.1	10	10
22. 1,1-DICHLOROETHYLENE	1.1	10	10
23. 1,1-DICHLOROETHYLENE	1.1	10	10
24. 1,1-DICHLOROETHYLENE	1.1	10	10
25. 1,1-DICHLOROETHYLENE	1.1	10	10
26. 1,1-DICHLOROETHYLENE	1.1	10	10
27. 1,1-DICHLOROETHYLENE	1.1	10	10
28. 1,1-DICHLOROETHYLENE	1.1	10	10
29. 1,1-DICHLOROETHYLENE	1.1	10	10
30. 1,1-DICHLOROETHYLENE	1.1	10	10
31. 1,1-DICHLOROETHYLENE	1.1	10	10
32. 1,1-DICHLOROETHYLENE	1.1	10	10
33. 1,1-DICHLOROETHYLENE	1.1	10	10
34. 1,1-DICHLOROETHYLENE	1.1	10	10
35. 1,1-DICHLOROETHYLENE	1.1	10	10
36. 1,1-DICHLOROETHYLENE	1.1	10	10
37. 1,1-DICHLOROETHYLENE	1.1	10	10
38. 1,1-DICHLOROETHYLENE	1.1	10	10
39. 1,1-DICHLOROETHYLENE	1.1	10	10
40. 1,1-DICHLOROETHYLENE	1.1	10	10
41. 1,1-DICHLOROETHYLENE	1.1	10	10
42. 1,1-DICHLOROETHYLENE	1.1	10	10
43. 1,1-DICHLOROETHYLENE	1.1	10	10
44. 1,1-DICHLOROETHYLENE	1.1	10	10
45. 1,1-DICHLOROETHYLENE	1.1	10	10
46. 1,1-DICHLOROETHYLENE	1.1	10	10
47. 1,1-DICHLOROETHYLENE	1.1	10	10
48. 1,1-DICHLOROETHYLENE	1.1	10	10
49. 1,1-DICHLOROETHYLENE	1.1	10	10
50. 1,1-DICHLOROETHYLENE	1.1	10	10
51. 1,1-DICHLOROETHYLENE	1.1	10	10
52. 1,1-DICHLOROETHYLENE	1.1	10	10
53. 1,1-DICHLOROETHYLENE	1.1	10	10
54. 1,1-DICHLOROETHYLENE	1.1	10	10
55. 1,1-DICHLOROETHYLENE	1.1	10	10
56. 1,1-DICHLOROETHYLENE	1.1	10	10
57. 1,1-DICHLOROETHYLENE	1.1	10	10
58. 1,1-DICHLOROETHYLENE	1.1	10	10
59. 1,1-DICHLOROETHYLENE	1.1	10	10
60. 1,1-DICHLOROETHYLENE	1.1	10	10
61. 1,1-DICHLOROETHYLENE	1.1	10	10
62. 1,1-DICHLOROETHYLENE	1.1	10	10
63. 1,1-DICHLOROETHYLENE	1.1	10	10
64. 1,1-DICHLOROETHYLENE	1.1	10	10
65. 1,1-DICHLOROETHYLENE	1.1	10	10
66. 1,1-DICHLOROETHYLENE	1.1	10	10
67. 1,1-DICHLOROETHYLENE	1.1	10	10
68. 1,1-DICHLOROETHYLENE	1.1	10	10
69. 1,1-DICHLOROETHYLENE	1.1	10	10
70. 1,1-DICHLOROETHYLENE	1.1	10	10
71. 1,1-DICHLOROETHYLENE	1.1	10	10
72. 1,1-DICHLOROETHYLENE	1.1	10	10
73. 1,1-DICHLOROETHYLENE	1.1	10	10
74. 1,1-DICHLOROETHYLENE	1.1	10	10
75. 1,1-DICHLOROETHYLENE	1.1	10	10
76. 1,1-DICHLOROETHYLENE	1.1	10	10
77. 1,1-DICHLOROETHYLENE	1.1	10	10
78. 1,1-DICHLOROETHYLENE	1.1	10	10
79. 1,1-DICHLOROETHYLENE	1.1	10	10
80. 1,1-DICHLOROETHYLENE	1.1	10	10
81. 1,1-DICHLOROETHYLENE	1.1	10	10
82. 1,1-DICHLOROETHYLENE	1.1	10	10
83. 1,1-DICHLOROETHYLENE	1.1	10	10
84. 1,1-DICHLOROETHYLENE	1.1	10	10
85. 1,1-DICHLOROETHYLENE	1.1	10	10
86. 1,1-DICHLOROETHYLENE	1.1	10	10
87. 1,1-DICHLOROETHYLENE	1.1	10	10
88. 1,1-DICHLOROETHYLENE	1.1	10	10
89. 1,1-DICHLOROETHYLENE	1.1	10	10
90. 1,1-DICHLOROETHYLENE	1.1	10	10
91. 1,1-DICHLOROETHYLENE	1.1	10	10
92. 1,1-DICHLOROETHYLENE	1.1	10	10
93. 1,1-DICHLOROETHYLENE	1.1	10	10
94. 1,1-DICHLOROETHYLENE	1.1	10	10
95. 1,1-DICHLOROETHYLENE	1.1	10	10
96. 1,1-DICHLOROETHYLENE	1.1	10	10
97. 1,1-DICHLOROETHYLENE	1.1	10	10
98. 1,1-DICHLOROETHYLENE	1.1	10	10
99. 1,1-DICHLOROETHYLENE	1.1	10	10
100. 1,1-DICHLOROETHYLENE	1.1	10	10





















CASE NARRATIVE

CLIENT: TETRA TECH EQ, INC.  
PROJECT: MPA, SITE 1, CTO 88  
SDB: 05-063

**EW3520C/20614  
PESTICIDES**

Ten (10) water samples were received on 10/01/05 for Pesticide Analysis by Method 3520C/20614 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-360, 3<sup>rd</sup> ed.

1. **Holding Time**  
Analytical holding time was met.
2. **Instrument Performance and Calibration**  
Initial calibration was at five points for Pesticides, all RSDs were within 20%. All calibration calibrations were analyzed at 12 hour interval and mean recoveries were within 80-115%.  
Endrin and ODF breakdown were within QC limit.
3. **Method Blank**  
Method blank was free of contamination at the reporting limit.
4. **Spike Recovery**  
Recoveries were within QC limit.
5. **Lab Control Sample/Lab Control Sample Duplicate**  
All recoveries were within QC limit.
6. **Matrix Spike/Matrix Spike Duplicate**  
Sample J003-J0 was spiked. All recoveries were within QC limit.
7. **Sample Analysis**  
Samples were analyzed according to its prescribed QC procedures. All criteria were met.  
  
When sample results are confirmed by a second column, the relative percentage difference (RPD) between the two results is calculated. If RPD is less than 40%, and no evidence of chromatographic problems, the higher result is reported. If RPD is greater than 40%, the chromatograph is checked for anomalies and results are decided based on the best professional judgement. If no evidence of any chromatographic problems, the higher result is reported.























# CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.  
 PROJECT: NFA, SITE 1, CTD 84  
 SDG: 05.1053

SW8520C/8082  
 PCBs

Ten (10) water samples were received on 10/07/05 for PCBs analysis by Method 3520C/8082 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

1. Holding Time  
 Analytical holding time was met.
2. Instrument Performance and Calibration  
 Initial calibration was five points for PCB-1016 and PCB-1280, all RSDs were within 20%. All continue calibrations were analyzed at 12 hour interval and all recoveries were within 85-115%.
3. Method Blank  
 Method Blank was free of contamination at this reporting limit.
4. Surrogate Recovery  
 Recoveries were within QC limit.
5. Lab Control Sample/Lab Control Sample Duplicate  
 All recoveries were within QC limits.
6. Matrix Spike/Matrix Spike Duplicates  
 Sample J053-10 was spiked. All recoveries were within QC limit.
7. Sample Analysis  
 Samples were analyzed according to the prescribed QC procedures. All criteria were met.









5603294 / 3022  
15284

1. *Journal of the American Medical Association*, 1997; 278: 1019-1024.

**DATAFILE 0002**  
**FILE:**

Operator: JAYNE ROSE, JR. Date Collected: 10/04/98  
Project: PALEO SITE A, ST005 Date: 10/07/98  
Batch: 00010055 Date Analyzed: 10/11/98 14:00  
Sample: 000 86-01-35 Date Analyzed: 10/13/98 23:00  
Lab Temp: 201 2752-96 Division Factor: 1  
Lab Vial ID: 0190354 Volume: 1 ML  
Lab Vial ID: 29-00794 % H2O/MSD: 1.94  
Lab ID: 497-5/10/2021 Instrument ID: 20-008

LABORATORY	MSD, % (mg/L)	F <sub>2</sub> (mg/L)	MSD (mg/L)
PCB-1016	680 (80)	0	251-25
PCB-1020	680 (80)	0	254-45
PCB-1030	680 (80)	0	251-25
PCB-1040	680 (80)	0	251-25
PCB-1050	680 (80)	0	251-25
PCB-1060	680 (80)	0	251-25
SUBSTITUTE PARAMETERS	5.0000000	0.0000000	
THIMERALDEHYDE-GLUCOSE	750 (80)	50-100	
DECEMBER 1996/97	911 (80)	50-100	

File Reporting (left)  
Left of 1 is related to first column; Right of 1 related to second column  
( ) included the reported column  
\* out of 80 (mg)

3635205/8662  
100%

Client: CERA TECH CO, INC      Date: 03/04/05  
Project: 100% SITE 1, CEN 50      Date: 03/04/05  
Station No.: 7 05205      Date: 03/04/05 16:00  
Sample: 10: 05-01-100      Date: 03/04/05 16:10  
Lab: 0505 10: 0505-05      Dilution Factor: .97  
CER. C114 (A) 03/05/04      Reagent: WATER  
Env. Tech. CO, 050520      9 Reagents: 9  
CALIB. 0001 0.1190000      10 Reagents: 10 0.01900

PARAMETER	RESULT (ug/L)	RL (ug/L)	MCL (ug/L)
PCP-1010	100.00	97	24.24
PCP-101	100.00	97	24.24
PCP-102	100.00	97	24.24
PCP-103	100.00	97	24.24
PCP-104	100.00	97	24.24
PCP-105	100.00	97	24.24
PCP-106	100.00	97	24.24
PCP-107	100.00	97	24.24
SUBSTRATE PARAMETERS	5 REDUCED	40 L/ML	
DETRAC. 0001-0.0000	0.00	10-150	
DETRAC. 0001-0.0000	0.00	10-150	

NO: Replicate 100%

NOTE: 1. is related to first column: 100% ml: column 10 second column:

2. included the replicate column:

\* 100% 100% 100%

# 3435 201/2002 Page

**Client:** TETRA TECH INC. **Date:** 10/14/05  
**Project:** WMA, SITE 1, CTS, 20 **Date:** 10/14/05  
**Order No.:** 054752 **Date:** 10/14/05  
**Order:** 10' 00" - 15' **Date:** 10/14/05  
**Lab Name:** 0107-05 **Date:** 10/14/05  
**Lab File:** 01070501 **Date:** 10/14/05  
**Lab Name:** 010705 **Date:** 10/14/05  
**Lab File:** 01070501 **Date:** 10/14/05

**Client:** TETRA TECH INC. **Date:** 10/14/05  
**Project:** WMA, SITE 1, CTS, 20 **Date:** 10/14/05  
**Order No.:** 054752 **Date:** 10/14/05  
**Order:** 10' 00" - 15' **Date:** 10/14/05  
**Lab Name:** 0107-05 **Date:** 10/14/05  
**Lab File:** 01070501 **Date:** 10/14/05

PARAMETERS	RESULT	SL	SL
	1000	1000	1000
1000-1000	1000	1000	1000
1000-1000	1000	1000	1000
1000-1000	1000	1000	1000
1000-1000	1000	1000	1000
1000-1000	1000	1000	1000
1000-1000	1000	1000	1000
1000-1000	1000	1000	1000
1000-1000	1000	1000	1000
1000-1000	1000	1000	1000

**PARAMETERS** **RESULT** **SL** **SL**  
**1000-1000** **1000** **1000** **1000**

**PARAMETERS** **RESULT** **SL** **SL**  
**1000-1000** **1000** **1000** **1000**

**PARAMETERS** **RESULT** **SL** **SL**  
**1000-1000** **1000** **1000** **1000**

**PARAMETERS** **RESULT** **SL** **SL**  
**1000-1000** **1000** **1000** **1000**

**PARAMETERS** **RESULT** **SL** **SL**  
**1000-1000** **1000** **1000** **1000**

**PARAMETERS** **RESULT** **SL** **SL**  
**1000-1000** **1000** **1000** **1000**

**PARAMETERS** **RESULT** **SL** **SL**  
**1000-1000** **1000** **1000** **1000**

**GC552(0906)**  
**PCB**

Worksheet: GC552(0906) 07/10/05 10:00:00  
 Client: 07236-1508-85-180 Date Collected: 05/08/05  
 Project: 07236-1508-85-180 Date Received: 05/09/05  
 Batch No: 05455 Date Extraction: 05/11/05 14:05  
 Sample ID: 05-21-100 Date Analysis: 05/14/05 03:48  
 Lab Name: 05-215653A Matrix: WATER  
 Lab Sub-ID: 0540079 X Refuge: 05  
 Calib: 05-215653B Volume: 10 / 20/100

ANALYTE	RESULT	RL	PL
ug/L	ug/L	ug/L	ug/L
PCB-1016	ND	90	25 / 30
PCB-1221	ND	90	25 / 30
PCB-1250	ND	90	25 / 30
PCB-1516	ND	90	25 / 30
PCB-1268	ND	95	25 / 30
PCB-1254	ND	95	25 / 30
PCB-1260	ND	95	25 / 30
DECAHALOCYCLOHEXANE	5.50 ug/L	10 / 100	
PCB-1254	5.50 ug/L	10 / 100	

RL: Pipeline Limit  
 (50 ug/L) is related to Pipeline 2 (50 ug/L) related to second column  
 ( ) indicates the reported value  
 \* On side of the limit

**W084007010**  
**PCB**

Client: 1 "E156 (PCB) TC - 084	Date: 04/04/2010
Project: 1 W084 4/10 TC - 084	Date: 04/04/2010
Sample No.: 1 084082	Date: 04/04/2010 14:00
Sample: 1 084 084-121	Date: 04/04/2010 09:47
Lab Sample No: 1082-71	Dilution Factor: .97
Lab Date: 04/04/2010	Matrix: 1 084084
Extraction: 04/04/2010	Reaction: 1 084
Cell No: 084 1082084	Temperature (C): 12.1000

PARAMETER	GC MS/MS C40/L1	HL SUM/ST	HL SUM/ST
PCB-1010	100.100	.97	.24-.24
PCB-1021	100.100	.97	.24-.24
PCB-1032	100.100	.97	.24-.24
PCB-1042	100.100	.97	.24-.24
PCB-1048	100.100	.97	.24-.24
PCB-1054	100.100	.97	.24-.24
PCB-1060	100.100	.97	.24-.24
SUBTOTAL PARAMETER	100.100	0.97	0.97
PARAMETER-BY-NAME	100.100	0.97	0.97
PARAMETER-BY-NAME	100.100	0.97	0.97

HL: Reported Value  
 HL (C): HL related to first column & HL (ST): HL related to second column  
 C: included the reported value  
 ST: included the HL value



# 0055001-0002 Page

Name : 0055001-0002 Date: 01/05/00  
 Project : 0055001-0002 Date: 01/05/00  
 Batch No. : 0055001-0002 Date: 01/05/00  
 Sample : 0055001-0002 Date: 01/05/00  
 Lab Name : 0055001-0002 Date: 01/05/00  
 Lab Title : 0055001-0002 Date: 01/05/00  
 Test Date : 0055001-0002 Date: 01/05/00  
 Colide. No. : 0055001-0002 Date: 01/05/00

PARAMETERS	RESULTS	RL	ABL
	(mg/L)	(mg/L)	(mg/L)
PCB-1016	0.01	0.01	0.01
PCB-1221	0.01	0.01	0.01
PCB-1222	0.01	0.01	0.01
PCB-1223	0.01	0.01	0.01
PCB-1224	0.01	0.01	0.01
PCB-1225	0.01	0.01	0.01
PCB-1226	0.01	0.01	0.01
PCB-1227	0.01	0.01	0.01
PCB-1228	0.01	0.01	0.01
PCB-1229	0.01	0.01	0.01
PCB-1230	0.01	0.01	0.01
PCB-1231	0.01	0.01	0.01
PCB-1232	0.01	0.01	0.01
PCB-1233	0.01	0.01	0.01
PCB-1234	0.01	0.01	0.01
PCB-1235	0.01	0.01	0.01
PCB-1236	0.01	0.01	0.01
PCB-1237	0.01	0.01	0.01
PCB-1238	0.01	0.01	0.01
PCB-1239	0.01	0.01	0.01
PCB-1240	0.01	0.01	0.01
PCB-1241	0.01	0.01	0.01
PCB-1242	0.01	0.01	0.01
PCB-1243	0.01	0.01	0.01
PCB-1244	0.01	0.01	0.01
PCB-1245	0.01	0.01	0.01
PCB-1246	0.01	0.01	0.01
PCB-1247	0.01	0.01	0.01
PCB-1248	0.01	0.01	0.01
PCB-1249	0.01	0.01	0.01
PCB-1250	0.01	0.01	0.01
PCB-1251	0.01	0.01	0.01
PCB-1252	0.01	0.01	0.01
PCB-1253	0.01	0.01	0.01
PCB-1254	0.01	0.01	0.01
PCB-1255	0.01	0.01	0.01
PCB-1256	0.01	0.01	0.01
PCB-1257	0.01	0.01	0.01
PCB-1258	0.01	0.01	0.01
PCB-1259	0.01	0.01	0.01
PCB-1260	0.01	0.01	0.01
PCB-1261	0.01	0.01	0.01
PCB-1262	0.01	0.01	0.01
PCB-1263	0.01	0.01	0.01
PCB-1264	0.01	0.01	0.01
PCB-1265	0.01	0.01	0.01
PCB-1266	0.01	0.01	0.01
PCB-1267	0.01	0.01	0.01
PCB-1268	0.01	0.01	0.01
PCB-1269	0.01	0.01	0.01
PCB-1270	0.01	0.01	0.01
PCB-1271	0.01	0.01	0.01
PCB-1272	0.01	0.01	0.01
PCB-1273	0.01	0.01	0.01
PCB-1274	0.01	0.01	0.01
PCB-1275	0.01	0.01	0.01
PCB-1276	0.01	0.01	0.01
PCB-1277	0.01	0.01	0.01
PCB-1278	0.01	0.01	0.01
PCB-1279	0.01	0.01	0.01
PCB-1280	0.01	0.01	0.01
PCB-1281	0.01	0.01	0.01
PCB-1282	0.01	0.01	0.01
PCB-1283	0.01	0.01	0.01
PCB-1284	0.01	0.01	0.01
PCB-1285	0.01	0.01	0.01
PCB-1286	0.01	0.01	0.01
PCB-1287	0.01	0.01	0.01
PCB-1288	0.01	0.01	0.01
PCB-1289	0.01	0.01	0.01
PCB-1290	0.01	0.01	0.01
PCB-1291	0.01	0.01	0.01
PCB-1292	0.01	0.01	0.01
PCB-1293	0.01	0.01	0.01
PCB-1294	0.01	0.01	0.01
PCB-1295	0.01	0.01	0.01
PCB-1296	0.01	0.01	0.01
PCB-1297	0.01	0.01	0.01
PCB-1298	0.01	0.01	0.01
PCB-1299	0.01	0.01	0.01
PCB-1300	0.01	0.01	0.01

PCB-1016: 0.01 mg/L  
 PCB-1221: 0.01 mg/L  
 PCB-1222: 0.01 mg/L  
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 PCB-1296: 0.01 mg/L  
 PCB-1297: 0.01 mg/L  
 PCB-1298: 0.01 mg/L  
 PCB-1299: 0.01 mg/L  
 PCB-1300: 0.01 mg/L

CASE NARRATIVE

CLIENT: TETRA TECH SQ, INC.  
PROJECT: MFA, SITE 1, CTO 85  
SDE#: 05J059

METHOD 7479A  
DISSOLVED MERCURY BY COLD VAPOR

Ten (10) water samples were received on 10/07/05 for Dissolved Mercury analysis by Method 7479A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

1. Holding Time

Analytic met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample J053-10 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

Sample J053-10 was spiked. MS recovery was within QC limit but was out of the limit in MSD.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

\*Samples were initially analyzed at DF 20 due to matrix interference of high salt level.

REYNOLDS, J. H. A.  
 UNIVERSITY MICROFILMS OF GREAT BRITAIN

Matrix	Wavelength
1	1190
2	1190

[illegible][illegible]

4. Support for the...

## COLUMBIA ANALYTICAL SERVICES, INC.

Client: Emax Laboratories Incorporated  
Project: Moffett  
Sample Matrix: Water

Service Request No.: K0504756  
Date Received: 10/12/2005

### CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

#### Sample Receipt

Twelve water samples were received for analysis at Columbia Analytical Services on 10/12/2005. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

#### Dissolved Metals

##### **Matrix Spike Recovery Exceptions:**

The matrix spike recoveries of Beryllium (59%), Cobalt (59%), Copper (74%), Lead (70%), and Thallium (72%) for Batch QC sample were outside the project specified control limits of 75-125%. All the recoveries were within the CAS statistically derived limits for the reductive precipitation procedure. Based on the CAS statistical control limits, the recoveries observed are in the range expected for this procedure. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicates the analytical batch was in control. No further corrective action was appropriate.

Approved by \_\_\_\_\_

Date \_\_\_\_\_

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated  
 Project No.: NA  
 Project Name: Moffett  
 Matrix: WATER

Service Request: K0504756  
 Date Collected: 10/04/05  
 Date Received: 10/12/05  
 Units: µg/L  
 Basis: NA

Sample Name: 86-S1-124

Lab Code: K0504756-001 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	2.000	0.200	2	10/22/05	11/2/05	0.376	B	
Arsenic	200.8	0.56	0.01	1	11/19/05	11/22/05	1.61		
Barium	200.8	2.00	0.24	2	10/22/05	11/2/05	107		
Beryllium	200.8	0.0222	0.0007	1	11/19/05	11/22/05	0.0073	B	N
Cadmium	200.8	0.022	0.002	1	11/19/05	11/22/05	0.407		
Chromium	200.8	0.22	0.03	1	11/19/05	11/22/05	0.44		
Cobalt	200.8	0.022	0.002	1	11/19/05	11/22/05	7.690		N
Copper	200.8	0.111	0.006	1	11/19/05	11/22/05	2.640		N
Lead	200.8	0.022	0.009	1	11/19/05	11/22/05	0.131		N
Nickel	200.8	0.22	0.02	1	11/19/05	11/22/05	16.3		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.022	0.002	1	11/19/05	11/22/05	0.093		
Thallium	200.8	0.0222	0.0006	1	11/19/05	11/22/05	0.0403		N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	13.7	B	
Zinc	200.8	0.56	0.02	1	11/19/05	11/22/05	20.1		

Solids: 0.0

Comments: Dissolved Metals

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated  
 Project No.: NA  
 Project Name: Moffett  
 Matrix: WATER

Service Request: K0504756  
 Date Collected: 10/04/05  
 Date Received: 10/12/05  
 Units: µG/L  
 Basis: NA

Sample Name: 86-S1-125

Lab Code: K0504756-002 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	2.000	0.200	2	10/22/05	11/2/05	0.200	B	
Arsenic	200.8	1.11	0.02	2	11/19/05	11/22/05	4.47		
Barium	200.8	2.00	0.24	2	10/22/05	11/2/05	176		
Beryllium	200.8	0.0222	0.0007	1	11/19/05	11/22/05	0.0108	B	N
Cadmium	200.8	0.044	0.004	2	11/19/05	11/22/05	0.004	U	
Chromium	200.8	0.44	0.07	2	11/19/05	11/22/05	0.84		
Cobalt	200.8	0.044	0.004	2	11/19/05	11/22/05	3.320		N
Copper	200.8	0.222	0.011	2	11/19/05	11/22/05	0.100	B	N
Lead	200.8	0.044	0.018	2	11/19/05	11/22/05	0.022	B	N
Nickel	200.8	0.44	0.04	2	11/19/05	11/22/05	6.46		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.044	0.004	2	11/19/05	11/22/05	0.004	U	
Thallium	200.8	0.0444	0.0011	2	11/19/05	11/22/05	0.0011	U	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	12.1	B	
Zinc	200.8	1.11	0.04	2	11/19/05	11/22/05	0.64	B	

\* Solids: 0.0

Comments: Dissolved Metals

## DISSOLVED METALS

-I-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated  
 Project No.: NA  
 Project Name: Moffett  
 Matrix: WATER

Service Request: K0504756  
 Date Collected: 10/06/05  
 Date Received: 10/12/05  
 Units: µG/L  
 Basis: NA

Sample Name: 86-S1-131

Lab Code: K0504756-003 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	1.000	0.100	1	10/22/05	11/2/05	0.244	B	
Arsenic	200.8	0.56	0.01	1	11/19/05	11/22/05	0.95		
Barium	200.8	1.00	0.12	1	10/22/05	11/2/05	576		
Beryllium	200.8	0.0222	0.0007	1	11/19/05	11/22/05	0.0042	B	N
Cadmium	200.8	0.022	0.002	1	11/19/05	11/22/05	0.002	U	
Chromium	200.8	0.22	0.03	1	11/19/05	11/22/05	0.56		
Cobalt	200.8	0.022	0.002	1	11/19/05	11/22/05	1.730		N
Copper	200.8	0.111	0.006	1	11/19/05	11/22/05	0.031	B	N
Lead	200.8	0.022	0.009	1	11/19/05	11/22/05	0.009	U	N
Nickel	200.8	0.22	0.02	1	11/19/05	11/22/05	4.69		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.022	0.002	1	11/19/05	11/22/05	0.002	U	
Thallium	200.8	0.0222	0.0006	1	11/19/05	11/22/05	0.0014	B	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	9.8	B	
Zinc	200.8	0.56	0.02	1	11/19/05	11/22/05	1.84		

Solids: 0.0

Comments: Dissolved Metals

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated  
 Project No.: NA  
 Project Name: Moffett  
 Matrix: WATER

Service Request: K0504756  
 Date Collected: 10/06/05  
 Date Received: 10/12/05  
 Units: µG/L  
 Basis: NA

Sample Name: 86-S1-132

Lab Code: K0504756-004 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	1.000	0.100	1	10/22/05	11/2/05	0.236	B	
Arsenic	200.8	0.56	0.01	1	11/19/05	11/22/05	1.95		
Barium	200.8	1.00	0.12	1	10/22/05	11/2/05	556		
Beryllium	200.8	0.0222	0.0007	1	11/19/05	11/22/05	0.0046	B	N
Cadmium	200.8	0.022	0.002	1	11/19/05	11/22/05	0.002	U	
Chromium	200.8	0.22	0.03	1	11/19/05	11/22/05	0.59		
Cobalt	200.8	0.022	0.002	1	11/19/05	11/22/05	2.990		N
Copper	200.8	0.111	0.006	1	11/19/05	11/22/05	0.060	B	N
Lead	200.8	0.022	0.009	1	11/19/05	11/22/05	0.009	U	N
Nickel	200.8	0.22	0.02	1	11/19/05	11/22/05	4.80		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.022	0.002	1	11/19/05	11/22/05	0.002	U	
Thallium	200.8	0.0222	0.0006	1	11/19/05	11/22/05	0.0011	B	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	10.3	B	
Zinc	200.8	0.56	0.02	1	11/19/05	11/22/05	2.25		

Solids: 0.0

Comments: Dissolved Metals



## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated  
 Project No.: NA  
 Project Name: Moffett  
 Matrix: WATER

Service Request: K0504756  
 Date Collected: 10/06/05  
 Date Received: 10/12/05  
 Units: µg/L  
 Basis: NA

Sample Name: 86-S1-133

Lab Code: K0504756-005 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	2.000	0.200	2	10/22/05	11/2/05	0.200	U	
Arsenic	200.8	1.05	0.02	2	11/19/05	11/22/05	3.86		
Barium	200.8	2.00	0.24	2	10/22/05	11/2/05	150		
Beryllium	200.8	0.0421	0.0013	2	11/19/05	11/22/05	0.0072	B	N
Cadmium	200.8	0.042	0.004	2	11/19/05	11/22/05	0.004	U	
Chromium	200.8	0.42	0.06	2	11/19/05	11/22/05	0.61		
Cobalt	200.8	0.042	0.004	2	11/19/05	11/22/05	2.270		N
Copper	200.8	0.211	0.011	2	11/19/05	11/22/05	0.099	B	N
Lead	200.8	0.042	0.017	2	11/19/05	11/22/05	0.017	U	N
Nickel	200.8	0.42	0.04	2	11/19/05	11/22/05	5.45		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.042	0.004	2	11/19/05	11/22/05	0.004	U	
Thallium	200.8	0.0421	0.0011	2	11/19/05	11/22/05	0.0011	U	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	7.3	B	
Zinc	200.8	1.05	0.04	2	11/19/05	11/22/05	31.3		

\* Solids: U.C

Comments: Dissolved Metals

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated  
 Project No.: NA  
 Project Name: Moffett  
 Matrix: WATER

Service Request: K0504756  
 Date Collected: 10/06/05  
 Date Received: 10/12/05  
 Units: µG/L  
 Basis: NA

Sample Name: 86-S1-134

Lab Code: K0504756-006 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	2.000	0.200	2	10/22/05	11/2/05	0.200	U	
Arsenic	200.8	1.11	0.02	2	11/19/05	11/22/05	4.33		
Barium	200.8	2.00	0.24	2	10/22/05	11/2/05	150		
Beryllium	200.8	0.0444	0.0013	2	11/19/05	11/22/05	0.0079	B	N
Cadmium	200.8	0.044	0.004	2	11/19/05	11/22/05	0.004	U	
Chromium	200.8	0.44	0.07	2	11/19/05	11/22/05	0.50		
Cobalt	200.8	0.044	0.004	2	11/19/05	11/22/05	2.280		N
Copper	200.8	0.222	0.011	2	11/19/05	11/22/05	0.093	B	N
Lead	200.8	0.044	0.018	2	11/19/05	11/22/05	0.026	B	N
Nickel	200.8	0.44	0.04	2	11/19/05	11/22/05	5.46		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.044	0.004	2	11/19/05	11/22/05	0.004	U	
Thallium	200.8	0.0444	0.0011	2	11/19/05	11/22/05	0.0011	U	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	10.6	B	
Zinc	200.8	1.11	0.04	2	11/19/05	11/22/05	20.6		

\* Solids: 0.0

Comments: Dissolved Metals

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated

Project No.: NA

Project Name: Moffett

Matrix: WATER

Service Request: K0504756

Date Collected: 10/06/05

Date Received: 10/12/05

Units: µG/L

Basis: NA

Sample Name: 06-S1-135

Lab Code: K0504756-007 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	45.2	B	
Antimony	200.8	1.000	0.100	1	10/22/05	11/2/05	0.306	B	
Arsenic	200.8	2.22	0.04	2	11/19/05	11/22/05	7.25		
Barium	200.8	1.00	0.12	1	10/22/05	11/2/05	398		
Beryllium	200.8	0.0444	0.0013	1	11/19/05	11/22/05	0.0242	B	N
Cadmium	200.8	0.089	0.009	2	11/19/05	11/22/05	0.009	U	
Chromium	200.8	0.89	0.13	2	11/19/05	11/22/05	2.51		
Cobalt	200.8	0.089	0.009	2	11/19/05	11/22/05	2.870		N
Copper	200.8	0.444	0.022	2	11/19/05	11/22/05	0.140	B	N
Lead	200.8	0.089	0.036	2	11/19/05	11/22/05	0.072	B	N
Nickel	200.8	0.89	0.09	2	11/19/05	11/22/05	9.48		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.089	0.009	2	11/19/05	11/22/05	0.009	U	
Thallium	200.8	0.0889	0.0022	2	11/19/05	11/22/05	0.0022	U	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	16.6	B	
Zinc	200.8	2.22	0.09	2	11/19/05	11/22/05	0.82	B	

Solids: 0.0

Comments: Dissolved Metals

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated  
 Project No.: NA  
 Project Name: Moffett  
 Matrix: WATER

Service Request: K0504756  
 Date Collected: 10/06/05  
 Date Received: 10/12/05  
 Units: µG/L  
 Basis: NA

Sample Name: 86-S1-136

Lab Code: K0504756-008 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	2.000	0.200	2	10/22/05	11/2/05	0.200	U	
Arsenic	200.8	2.22	0.04	2	11/19/05	11/22/05	7.72		
Barium	200.8	2.00	0.24	2	10/22/05	11/2/05	458		
Beryllium	200.8	0.0889	0.0027	2	11/19/05	11/22/05	0.0294	B	N
Cadmium	200.8	0.089	0.009	2	11/19/05	11/22/05	0.009	U	
Chromium	200.8	0.89	0.13	2	11/19/05	11/22/05	0.92		
Cobalt	200.8	0.089	0.009	2	11/19/05	11/22/05	7.280		N
Copper	200.8	0.444	0.022	2	11/19/05	11/22/05	0.125	B	N
Lead	200.8	0.089	0.036	2	11/19/05	11/22/05	0.041	B	N
Nickel	200.8	0.89	0.09	2	11/19/05	11/22/05	12.5		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.089	0.009	2	11/19/05	11/22/05	0.009	U	
Thallium	200.8	0.0889	0.0022	2	11/19/05	11/22/05	0.0022	U	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	15.1	B	
Zinc	200.8	2.22	0.09	2	11/19/05	11/22/05	0.74	B	

t Solids: 0.0

Comments: Dissolved Metals

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated  
 Project No.: NA  
 Project Name: Moffett  
 Matrix: WATER

Service Request: K0504756  
 Date Collected: 10/06/05  
 Date Received: 10/12/05  
 Units: µG/L  
 Basis: NA

Sample Name: 86-S1-126

Lab Code: K0504756-009 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	2.000	0.200	2	10/22/05	11/2/05	0.200	U	
Arsenic	200.8	1.18	0.02	2	11/19/05	11/22/05	2.97		
Barium	200.8	2.00	0.24	2	10/22/05	11/2/05	99.9		
Beryllium	200.8	0.0235	0.0007	1	11/19/05	11/22/05	0.0065	B	N
Cadmium	200.8	0.047	0.005	2	11/19/05	11/22/05	0.473		
Chromium	200.8	0.47	0.07	2	11/19/05	11/22/05	0.35	B	
Cobalt	200.8	0.047	0.005	2	11/19/05	11/22/05	9.690		N
Copper	200.8	0.235	0.012	2	11/19/05	11/22/05	0.494		N
Lead	200.8	0.047	0.019	2	11/19/05	11/22/05	0.036	B	N
Nickel	200.8	0.47	0.05	2	11/19/05	11/22/05	14.5		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.047	0.005	2	11/19/05	11/22/05	0.005	U	
Thallium	200.8	0.0471	0.0012	2	11/19/05	11/22/05	0.0517		N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	11.6	B	
Zinc	200.8	1.18	0.05	2	11/19/05	11/22/05	17.4		

Solids: 0.0

Comments: Dissolved Metals

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated  
 Project No.: NA  
 Project Name: Moffett  
 Matrix: WATER

Service Request: K0504756  
 Date Collected: 10/06/05  
 Date Received: 10/12/05  
 Units: µg/L  
 Basis: NA

Sample Name: 86-S1-128

Lab Code: K0504756-010 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	2.000	0.200	2	10/22/05	11/2/05	0.200	U	
Arsenic	200.8	1.25	0.03	2	11/19/05	11/22/05	5.28		
Barium	200.8	2.00	0.24	2	10/22/05	11/2/05	159		
Beryllium	200.8	0.0250	0.0008	1	11/19/05	11/22/05	0.0102	B	N
Cadmium	200.8	0.050	0.005	2	11/19/05	11/22/05	0.005	U	
Chromium	200.8	0.50	0.08	2	11/19/05	11/22/05	0.44	B	
Cobalt	200.8	0.050	0.005	2	11/19/05	11/22/05	8.340		N
Copper	200.8	0.250	0.013	2	11/19/05	11/22/05	0.075	B	N
Lead	200.8	0.050	0.020	2	11/19/05	11/22/05	0.020	U	N
Nickel	200.8	0.50	0.05	2	11/19/05	11/22/05	10.3		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.050	0.005	2	11/19/05	11/22/05	0.005	U	
Thallium	200.8	0.0500	0.0013	2	11/19/05	11/22/05	0.0031	B	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	13.0	B	
Zinc	200.8	1.25	0.05	2	11/19/05	11/22/05	1.09	B	

\* Solids: 0.0

Comments: Dissolved Metals

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated  
 Project No.: NA  
 Project Name: Moffett  
 Matrix: WATER

Service Request: K0504756  
 Date Collected: 10/06/05  
 Date Received: 10/12/05  
 Units: µG/L  
 Basis: NA

Sample Name: 86-S1-129

Lab Code: K0504756-011 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	2.000	0.200	2	10/22/05	11/2/05	0.200	U	
Arsenic	200.8	1.11	0.02	2	11/19/05	11/22/05	2.53		
Barium	200.8	2.00	0.24	2	10/22/05	11/2/05	72.0		
Beryllium	200.8	0.0222	0.0007	1	11/19/05	11/22/05	0.0054	B	N
Cadmium	200.8	0.044	0.004	2	11/19/05	11/22/05	0.742		
Chromium	200.8	0.44	0.07	2	11/19/05	11/22/05	0.36	B	
Cobalt	200.8	0.044	0.004	2	11/19/05	11/22/05	5.250		N
Copper	200.8	0.222	0.011	2	11/19/05	11/22/05	0.205	B	N
Lead	200.8	0.044	0.018	2	11/19/05	11/22/05	0.018	U	N
Nickel	200.8	0.44	0.04	2	11/19/05	11/22/05	10.1		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.044	0.004	2	11/19/05	11/22/05	0.004	U	
Thallium	200.8	0.0444	0.0011	2	11/19/05	11/22/05	0.0380	B	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	14.7	B	
Zinc	200.8	1.11	0.04	2	11/19/05	11/22/05	44.3		

Solids: 0.0

Comments: Dissolved Metals

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated  
 Project No.: NA  
 Project Name: Moffett  
 Matrix: WATER

Service Request: K0504756  
 Date Collected: 10/06/05  
 Date Received: 10/12/05  
 Units: µG/L  
 Basis: NA

Sample Name: 86-S1-130

Lab Code: K0504756-012 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	50.3		
Antimony	200.8	1.000	0.100	1	10/22/05	11/2/05	0.484	B	
Arsenic	200.8	1.11	0.02	2	11/19/05	11/22/05	1.93		
Barium	200.8	1.00	0.12	1	10/22/05	11/2/05	1260		
Beryllium	200.8	0.0222	0.0007	1	11/19/05	11/22/05	0.0169	B	N
Cadmium	200.8	0.044	0.004	2	11/19/05	11/22/05	0.004	U	
Chromium	200.8	0.44	0.07	2	11/19/05	11/22/05	7.41		
Cobalt	200.8	0.044	0.004	2	11/19/05	11/22/05	0.360		N
Copper	200.8	0.222	0.011	2	11/19/05	11/22/05	0.135	B	N
Lead	200.8	0.044	0.018	2	11/19/05	11/22/05	0.019	B	N
Nickel	200.8	0.44	0.04	2	11/19/05	11/22/05	61.6		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.044	0.004	2	11/19/05	11/22/05	0.004	U	
Thallium	200.8	0.0444	0.0011	2	11/19/05	11/22/05	0.0011	U	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	14.6	B	
Zinc	200.8	1.11	0.04	2	11/19/05	11/22/05	20.2		

Solids: 0.0

Comments: Dissolved Metals



## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated  
 Project No.: NA  
 Project Name: Moffett  
 Matrix: WATER

Service Request: K0504756  
 Date Collected:  
 Date Received:  
 Units: µg/L  
 Basis: NA

Sample Name: Method Blank

Lab Code: K0504756-MB

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	1.000	0.100	1	10/22/05	11/2/05	0.100	U	
Arsenic	200.8	0.50	0.01	1	11/19/05	11/22/05	0.01	U	
Barium	200.8	1.00	0.12	1	10/22/05	11/2/05	1.57		
Beryllium	200.8	0.0200	0.0006	1	11/19/05	11/22/05	0.0006	U	N
Cadmium	200.8	0.020	0.002	1	11/19/05	11/22/05	0.002	U	
Chromium	200.8	0.20	0.03	1	11/19/05	11/22/05	0.03	U	
Cobalt	200.8	0.020	0.002	1	11/19/05	11/22/05	0.002	U	N
Copper	200.8	0.100	0.005	1	11/19/05	11/22/05	0.005	U	N
Lead	200.8	0.020	0.008	1	11/19/05	11/22/05	0.008	U	N
Nickel	200.8	0.20	0.02	1	11/19/05	11/22/05	0.02	U	
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.020	0.002	1	11/19/05	11/22/05	0.002	U	
Thallium	200.8	0.0200	0.0005	1	11/19/05	11/22/05	0.0005	U	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	7.0	U	
Zinc	200.8	0.50	0.02	1	11/19/05	11/22/05	0.02	U	

Solids: 0.0

Comments:

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86

**Collection Date:** October 6, 2005

**LDC Report Date:** November 17, 2005

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J053

**Sample Identification**

86-S1-139  
86-S1-131  
86-S1-132\*\*  
86-S1-133  
86-S1-134\*\*  
86-S1-135  
86-S1-136  
86-S1-138  
86-S1-126  
86-S1-128  
86-S1-129  
86-S1-130  
86-S1-128MS  
86-S1-128MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

All samples were received in good condition with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-S1-132** 86-S1-133 86-S1-126 86-S1-128	All TCL compounds	Air bubbles were apparent in the sample containers.	There should be no air bubbles in the sample containers.	J (all detects) UJ (all non-detects)	A

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination ( $r^2$ ) were greater than or equal to 0.990 .

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all volatile target compounds were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
9/21/05	Acetone 2-Butanone	0.043 ( $\geq 0.05$ ) 0.040 ( $\geq 0.05$ )	86-S1-136 86-S1-138 86-S1-128 86-S1-128 86-S1-129 86-S1-130 86-S1-128MS 86-S1-128MSD MBLK1W	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

#### IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
10/19/05	Chloroethane Trichlorofluoromethane Carbon disulfide 2,2-Dichloropropane n-Butylbenzene Hexachlorobutadiene	27.1 41.9 26.3 42.6 25.6 28.0	86-S1-139 86-S1-131 86-S1-132** 86-S1-133 86-S1-134** 86-S1-135 MBLK2W	J (all detects) UJ (all non-detects)	A

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 25.0% for all compounds.

All of the continuing calibration RRF values were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
10/16/05	Acetone	0.035 ( $\geq 0.05$ )	86-S1-136 86-S1-138 86-S1-126 86-S1-128 86-S1-129 86-S1-130 86-S1-128MS 86-S1-128MSD MBLK1W	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
	2-Butanone	0.044 ( $\geq 0.05$ )			

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

Samples 86-S1-131 and 86-S1-132\*\* and samples 86-S1-133 and 86-S1-134\*\* were identified as field duplicates. No volatiles were detected in any of the samples.

## **XVII. Field Blanks**

Samples 86-S1-139 and 86-S1-138 were identified as trip blanks. No volatile contaminants were found in these blanks.

**Moffett Air Field, Site 1, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 05J053**

SDG	Sample	Compound	Flag	A or P	Reason
04J053	86-S1-132** 86-S1-133 86-S1-126 86-S1-128	All TCL compounds	J (all detects) UJ (all non-detects)	A	Sample condition
04J053	86-S1-136 86-S1-138 86-S1-126 86-S1-128 86-S1-129 86-S1-130	Acetone  2-Butanone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
04J053	86-S1-139 86-S1-131 86-S1-132** 86-S1-133 86-S1-134** 86-S1-135	Chloroethane Trichlorofluoromethane Carbon disulfide 2,2-Dichloropropane n-Butylbenzene Hexachlorobutadiene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
04J053	86-S1-136 86-S1-138 86-S1-126 86-S1-128 86-S1-129 86-S1-130	Acetone  2-Butanone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)

**Moffett Air Field, Site 1, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 05J053**

No Sample Data Qualified in this SDG



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86

**Collection Date:** October 6, 2005

**LDC Report Date:** November 17, 2005

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J053

**Sample Identification**

86-S1-131  
86-S1-132\*\*  
86-S1-133  
86-S1-134\*\*  
86-S1-135  
86-S1-136  
86-S1-126  
86-S1-128  
86-S1-129  
86-S1-130  
86-S1-130RE  
86-S1-128MS  
86-S1-128MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 13 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination ( $r^2$ ) were greater than or equal to 0.990.

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all semivolatile target compounds were within method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
10/14/05	Bis(2-chloroisopropyl)ether 2,4-Dinitrophenol 4-Nitrophenol Benzo(k)fluoranthene	34.9 33.8 25.5 33.6	86-S1-131 86-S1-132** 86-S1-133 86-S1-134** 86-S1-135 86-S1-136 86-S1-126 86-S1-128 86-S1-129 86-S1-130 86-S1-128MS 86-S1-128MSD MLK1W	J (all detects) UJ (all non-detects)	A
10/17/05	Bis(2-chloroisopropyl)ether  Benzo(k)fluoranthene	33.1  27.5	86-S1-130RE	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within method and validation criteria.

#### V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

#### VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

#### VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
86-S1-130RE	Perylene-d12	145405 (182354-729416)	Di-n-octylphthalate Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Indeno(1,2,3-cd)pyrene Dibenz(e,h)anthracene Benzo(g,h,i)perylene	J (all detects) UJ (all non-detects)	A

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

## XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

Samples 86-S1-131 and 86-S1-132\*\* and samples 86-S1-133 and 86-S1-134\*\* were identified as field duplicates. No semivolatiles were detected in any of the samples.

## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Air Field, Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 05J053**

SDG	Sample	Compound	Flag	A or P	Reason
04J053	86-S1-131 86-S1-132** 86-S1-133 86-S1-134** 86-S1-135 86-S1-136 86-S1-126 86-S1-128 86-S1-129 86-S1-130	Bis(2-chloroisopropyl)ether 2,4-Dinitrophenol 4-Nitrophenol Benzo(k)fluoranthene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
04J053	86-S1-130RE	Bis(2-chloroisopropyl)ether  Benzo(k)fluoranthene	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
04J053	86-S1-130RE	Di-n-octylphthalate Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene Benzo(g,h,i)perylene	J (all detects) UJ (all non-detects)	A	Internal standards (area)

**Moffett Air Field, Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05J053**

No Sample Data Qualified in this SDG

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86  
**Collection Date:** October 6, 2005  
**LDC Report Date:** November 17, 2005  
**Matrix:** Water  
**Parameters:** Chlorinated Pesticides  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 05J053

### Sample Identification

86-S1-131  
86-S1-132\*\*  
86-S1-133  
86-S1-134\*\*  
86-S1-135  
86-S1-136  
86-S1-126  
86-S1-128  
86-S1-129  
86-S1-130  
86-S1-128MS  
86-S1-128MSD

\*\*Indicates sample underwent EPA Level IV review.



## Introduction

This data review covers 12 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

## **III. Initial Calibration**

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

The individual 4,4'-DDT and Endrin breakdowns were less than 15.0% .

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

#### **XIV. Field Duplicates**

Samples 86-S1-131 and 86-S1-132\*\* and samples 86-S1-133 and 86-S1-134\*\* were identified as field duplicates. No chlorinated pesticides were detected in any of the samples.

#### **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**  
**Chlorinated Pesticides - Data Qualification Summary - SDG 05J053**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**  
**Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 05J053**

No Sample Data Qualified in this SDG

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86  
**Collection Date:** October 6, 2005  
**LDC Report Date:** November 17, 2005  
**Matrix:** Water  
**Parameters:** Polychlorinated Biphenyls  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J053

### Sample Identification

86-S1-131  
86-S1-132\*\*  
86-S1-133  
86-S1-134\*\*  
86-S1-135  
86-S1-136  
86-S1-126  
86-S1-128  
86-S1-129  
86-S1-130  
86-S1-128MS  
86-S1-128MSD

\*\*Indicates sample underwent EPA Level IV review.

## Introduction

This data review covers 12 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance data were not provided and therefore not reviewed.

## **III. Initial Calibration**

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.



## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XIV. Field Duplicates**

Samples 86-S1-131 and 86-S1-132\*\* and samples 86-S1-133 and 86-S1-134\*\* were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.

## **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**

**Polychlorinated Biphenyls - Data Qualification Summary - SDG 05J053**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**

**Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 05J053**

No Sample Data Qualified in this SDG

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86

**Collection Date:** November 6, 2005

**LDC Report Date:** November 14, 2005

**Matrix:** Water

**Parameters:** Dissolved Mercury

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J053

### Sample Identification

86-S1-131  
86-S1-132\*\*  
86-S1-133  
86-S1-134\*\*  
86-S1-135  
86-S1-136  
86-S1-126  
86-S1-128  
86-S1-129  
86-S1-130  
86-S1-128MS  
86-S1-128MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 12 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

ICP was not utilized in this SDG.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-S1-128MS/MSD (All samples in SDG 05J053)	Dissolved mercury	-	67 (75-125)	-	J (all detects) UJ (all non-detects)	A

## VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standards

ICP-MS was not utilized in this SDG.

## **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

## **X. ICP Serial Dilution**

ICP serial dilution was not performed for this SDG.

## **XI. Sample Result Verification**

All sample result verifications were acceptable for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for samples reviewed by Level III criteria.

## **XII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XIII. Field Duplicates**

Samples 86-S1-131 and 86-S1-132\*\* and samples 86-S1-133 and 86-S1-134\*\* were identified as field duplicates. No metals were detected in any of the samples.

## **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Air Field, Site 1, CTO 86**  
**Dissolved Mercury - Data Qualification Summary - SDG 05J053**

SDG	Sample	Analyte	Flag	A or P	Reason
05J053	86-S1-131 86-S1-132** 86-S1-133 86-S1-134** 86-S1-135 86-S1-136 86-S1-126 86-S1-128 86-S1-129 86-S1-130	Dissolved mercury	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

**Moffett Air Field, Site 1, CTO 86**  
**Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 05J053**

No Sample Data Qualified in this SDG



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86  
**Collection Date:** October 4 through October 6, 2005  
**LDC Report Date:** December 5, 2005  
**Matrix:** Water  
**Parameters:** Dissolved Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** Columbia Analytical Services, Inc.  
**Sample Delivery Group (SDG):** K0504756

**Sample Identification**

86-S1-124  
86-S1-125  
86-S1-131  
86-S1-132\*\*  
86-S1-133  
86-S1-134\*\*  
86-S1-135  
86-S1-136  
86-S1-126  
86-S1-128  
86-S1-129  
86-S1-130  
86-S1-124MS  
86-S1-124DUP  
86-S1-128MS  
86-S1-128DUP

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 16 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B and 7742, and EPA Method 200.8 for Dissolved Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met with the following exceptions:

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
10/22/05	CCV2	Beryllium	113 (90-110)	PB	J (all detects)	P

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Barium	1.57 ug/L	All samples in SDG K0504756
ICB/CCB	Antimony Arsenic Beryllium Selenium Thallium	0.029 ug/L 0.011 ug/L 0.0221 ug/L 0.3 ug/L 0.08 ug/L	All samples in SDG K0504756

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
86-S1-124	Antimony Beryllium (0.11x) Thallium (0.1"x)	0.376 ug/L 0.0073 ug/L 0.0403 ug/L	0.376U ug/L 0.0073U ug/L 0.0403U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
86-S1-125	Antimony Beryllium (0.11x)	0.200 ug/L 0.0109 ug/L	0.200U ug/L 0.0109U ug/L
86-S1-131	Antimony Beryllium (0.11x) Thallium (0.11x)	0.244 ug/L 0.0042 ug/L 0.0014 ug/L	0.244U ug/L 0.0042U ug/L 0.0014U ug/L
86-S1-132**	Antimony Beryllium (0.11x) Thallium (0.11x)	0.236 ug/L 0.0046 ug/L 0.0011 ug/L	0.236U ug/L 0.0046U ug/L 0.0011U ug/L
86-S1-133	Beryllium (0.21x)	0.0072 ug/L	0.0072U ug/L
86-S1-134**	Beryllium (0.22x)	0.0079 ug/L	0.0079U ug/L
86-S1-135	Antimony Beryllium (0.22x)	0.306 ug/L 0.0242 ug/L	0.306U ug/L 0.0242U ug/L
86-S1-136	Beryllium (0.44x)	0.0294 ug/L	0.0294U ug/L
86-S1-126	Beryllium (0.12x) Thallium (0.24x)	0.0065 ug/L 0.0517 ug/L	0.0065U ug/L 0.0517U ug/L
86-S1-128	Beryllium (0.125x) Thallium (0.25x)	0.0102 ug/L 0.0031 ug/L	0.0102U ug/L 0.0031U ug/L
86-S1-129	Beryllium (0.11x) Thallium (0.22x)	0.0054 ug/L 0.0380 ug/L	0.0054U ug/L 0.0380U ug/L
86-S1-130	Antimony	0.484 ug/L	0.484U ug/L

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits with the following exceptions:

Date	Sample	Internal Standard	%R (Limits)	Analyte	Flag	A or P
11/2/05	86-S1-132**	Indium <sup>113</sup> Lutetium <sup>175</sup>	170.7 (60-125) 149.5 (60-125)	Antimony Barium	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
11/2/05	86-S1-134**	Indium <sup>113</sup> Lutetium <sup>175</sup>	132.6 (60-125) 149.1 (60-125)	Antimony Barium	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
11/22/05	86-S1-132**	Scandium <sup>45</sup> Nickel <sup>61</sup> Indium <sup>115</sup> Lutetium <sup>175</sup>	136.1 (60-125) 192.4 (60-125) 157.6 (60-125) 125.8 (60-125)	Arsenic Cadmium Chromium Cobalt Copper Lead Nickel Silver Thallium Zinc	J (all detects) UJ (all non-detects)	A
11/22/05	86-S1-134**	Nickel <sup>61</sup> Indium <sup>115</sup>	188.7 (60-125) 150.8 (60-125)	Nickel Arsenic Cadmium Chromium Cobalt Copper Silver Zinc	J (all detects) UJ (all non-detects)	A
11/22/05	86-S1-132**	Scandium <sup>45</sup>	145.1 (60-125)	Beryllium	J (all detects) UJ (all non-detects)	A
11/22/05	86-S1-134**	Scandium <sup>45</sup>	161.3 (60-125)	Beryllium	J (all detects) UJ (all non-detects)	A

### IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

### XI. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XIII. Field Duplicates

Samples 86-S1-131 and 86-S1-132\*\* and samples 86-S1-133 and 86-S1-134\*\* were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD
	86-S1-131	86-S1-132**	
Antimony	0.244	0.236	3
Arsenic	0.95	1.95	69
Barium	578	556	4
Beryllium	0.0042	0.0045	9
Chromium	0.56	0.59	5
Cobalt	1.730	2.990	53
Copper	0.031	0.060	64
Nickel	4.59	4.80	2
Thallium	0.0014	0.0011	24

Analyte	Concentration (mg/Kg)		RPD
	86-S1-131	86-S1-132**	
Vanadium	9.8	10.3	5
Zinc	1.84	2.25	20

Analyte	Concentration (mg/Kg)		RPD
	86-S1-133	86-S1-134**	
Arsenic	3.86	4.33	11
Barium	150	150	0
Beryllium	0.0072	0.0079	9
Chromium	0.61	0.50	20
Cobalt	2.270	2.280	0
Copper	0.069	0.093	6
Lead	0.017U	0.025	Not calculable
Nickel	5.45	5.46	0
Vanadium	7.3	10.6	37
Zinc	31.3	20.6	41

#### XIV. Field Blanks

No field blanks were identified in this SDG.

**Moffett Air Field, Site 1, CTO 86**  
**Dissolved Metals - Data Qualification Summary - SDG K0504756**

SDG	Sample	Analyte	Flag	A or P	Reason
K0504756	86-S1-132**	Antimony Barium Arsenic Cadmium Chromium Cobalt Copper Lead Nickel Silver Thallium Zinc Beryllium	J (all detects) UJ (all non-detects)	A	Internal standards (%R)
K0504756	86-S1-134**	Antimony Barium Nickel Arsenic Cadmium Chromium Cobalt Copper Silver Zinc Beryllium	J (all detects) UJ (all non-detects)	A	Internal standards (%R)

**Moffett Air Field, Site 1, CTO 86**  
**Dissolved Metals - Laboratory Blank Data Qualification Summary - SDG K0504756**

SDG	Sample	Analyte	Modified Final Concentration	A or P
K0504756	86-S1-124	Antimony Beryllium (0.11x) Thallium (0.11x)	0.376U ug/L 0.0073U ug/L 0.0403U ug/L	A
K0504756	86-S1-125	Antimony Beryllium (0.11x)	0.200U ug/L 0.0106U ug/L	A
K0504756	86-S1-131	Antimony Beryllium (0.11x) Thallium (0.11x)	0.244U ug/L 0.0042U ug/L 0.0014U ug/L	A
K0504756	86-S1-132**	Antimony Beryllium (0.11x) Thallium (0.11x)	0.236U ug/L 0.0046U ug/L 0.0011U ug/L	A
K0504756	86-S1-133	Beryllium (0.21x)	0.0072U ug/L	A



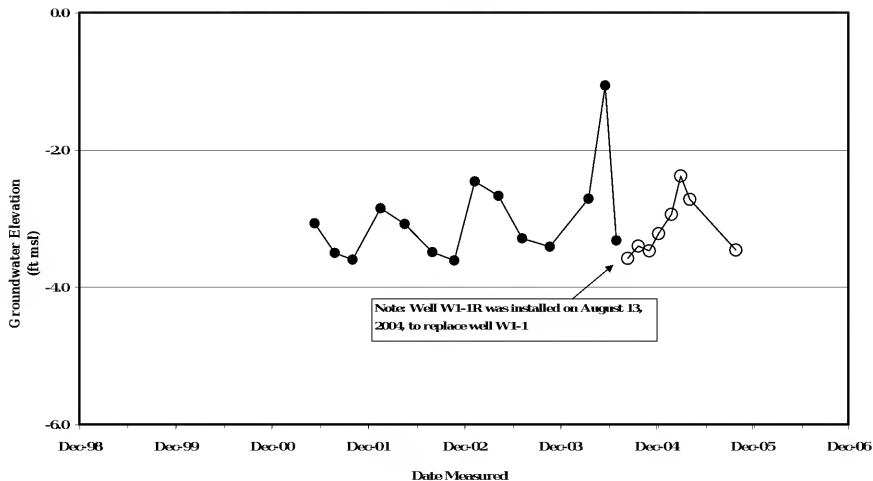
SDG	Sample	Analyte	Modified Final Concentration	A or P
K0504756	86-S1-134**	Beryllium (0.22x)	0.0079U ug/L	A
K0504756	86-S1-135	Antimony Beryllium (0.22x)	0.306U ug/L 0.0242U ug/L	A
K0504756	86-S1-136	Beryllium (0.44x)	0.0294U ug/L	A
K0504756	86-S1-126	Beryllium (0.12x) Thallium (0.24x)	0.0065U ug/L 0.0517U ug/L	A
K0504756	86-S1-128	Beryllium (0.125x) Thallium (0.25x)	0.0102U ug/L 0.0031U ug/L	A
K0504756	86-S1-129	Beryllium (0.11x) Thallium (0.22x)	0.0054U ug/L 0.0360U ug/L	A
K0504756	86-S1-130	Antimony	0.484U ug/L	A

## **APPENDIX D**

### **GROUNDWATER HYDROGRAPHS**

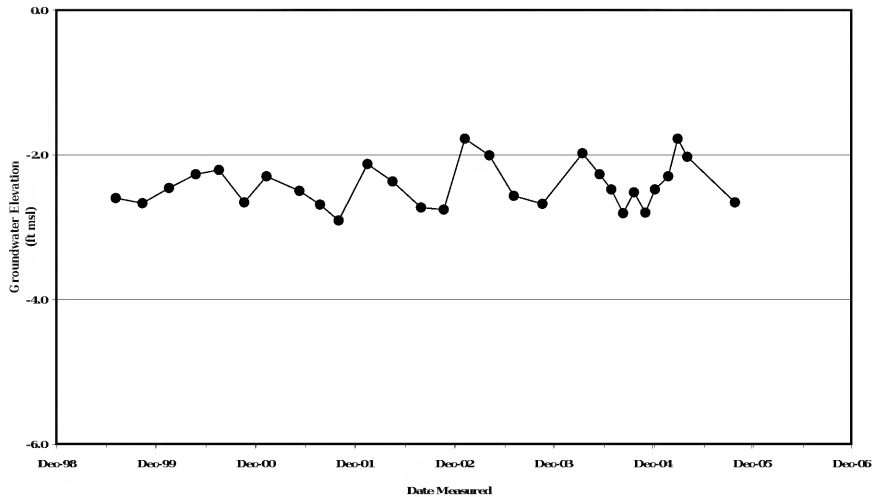
FIGURE D-1

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPHS, WELLS W1-1 AND W1-1R



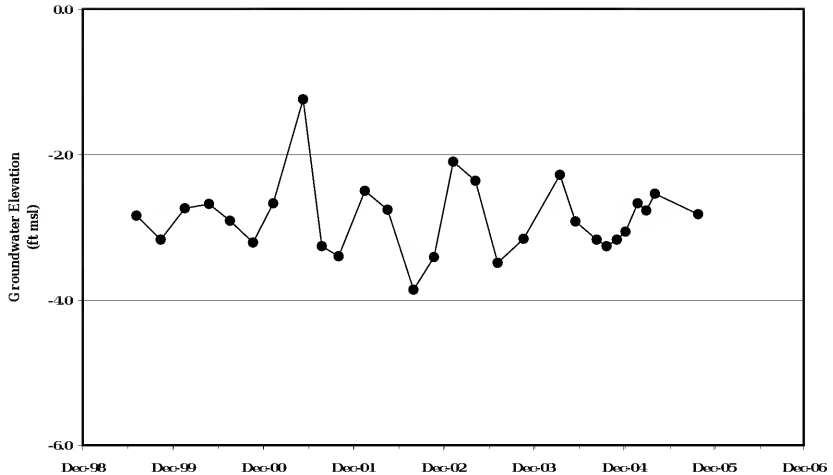
**FIGURE D-2**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-5**



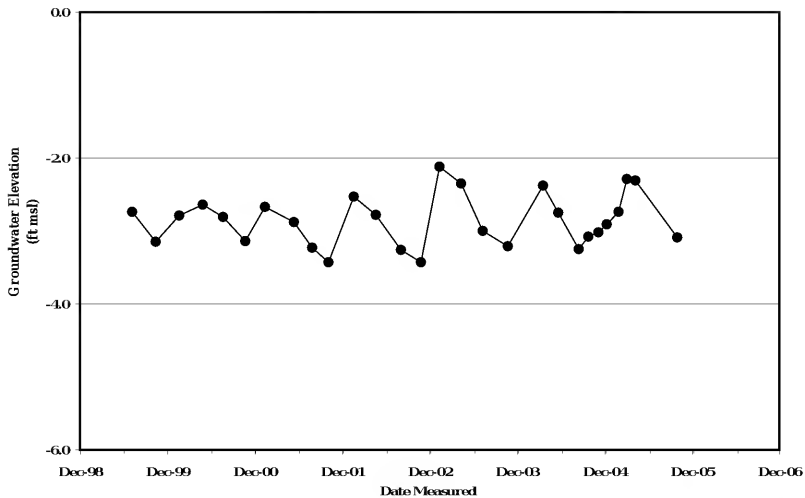
**FIGURE D-3**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-6**



**FIGURE D-4**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-7**



**FIGURE D-5**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-8**

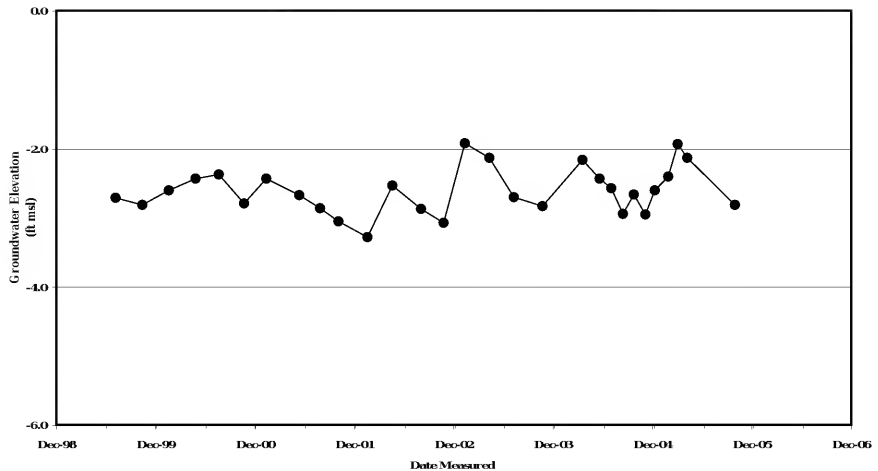
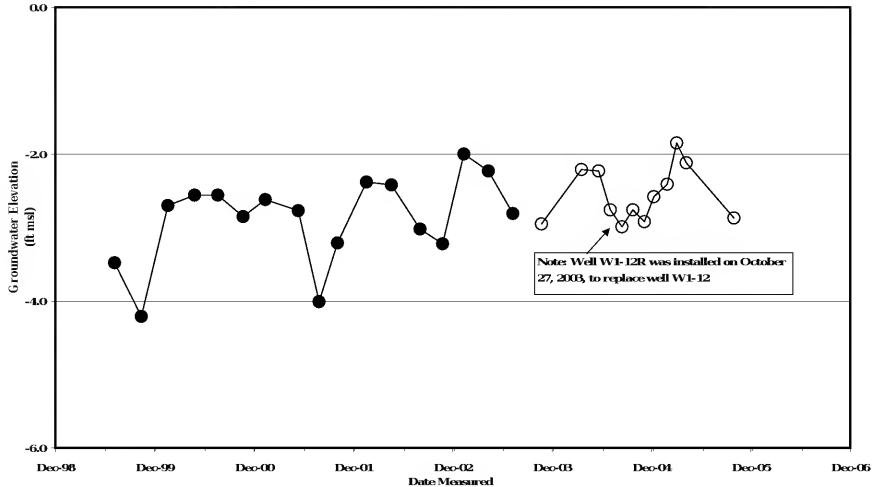


FIGURE D-6

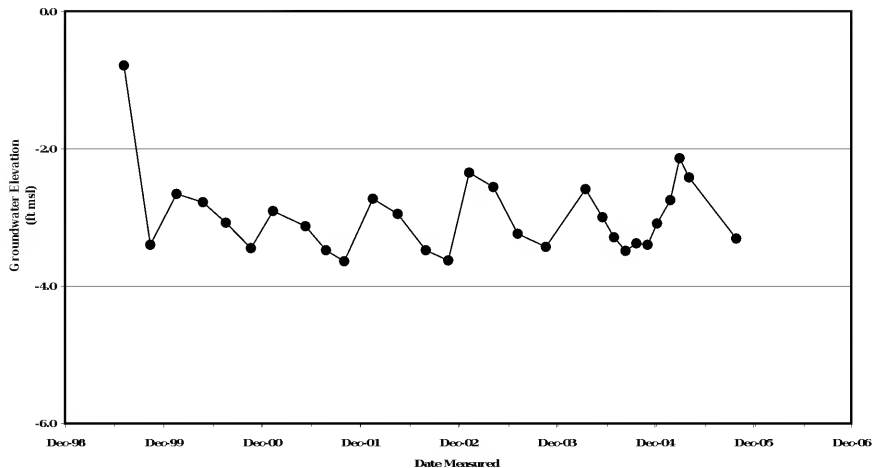
DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPHS, WELLS W1-12 AND W1-12R





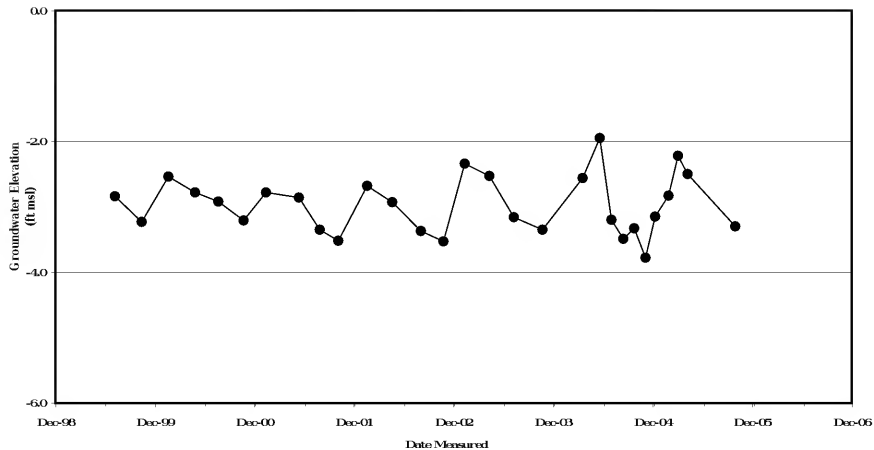
**FIGURE D-7**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-14**



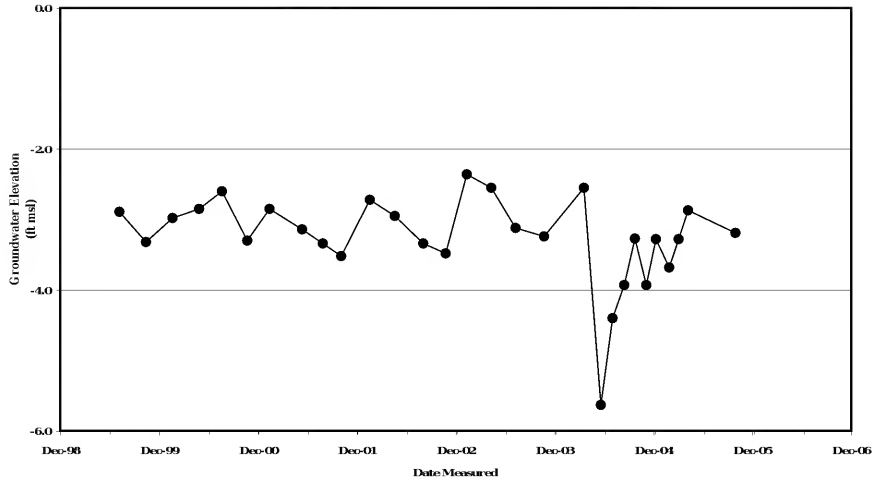
**FIGURE D-8**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-15**



**FIGURE D-9**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-16**



**FIGURE D-10**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-19**

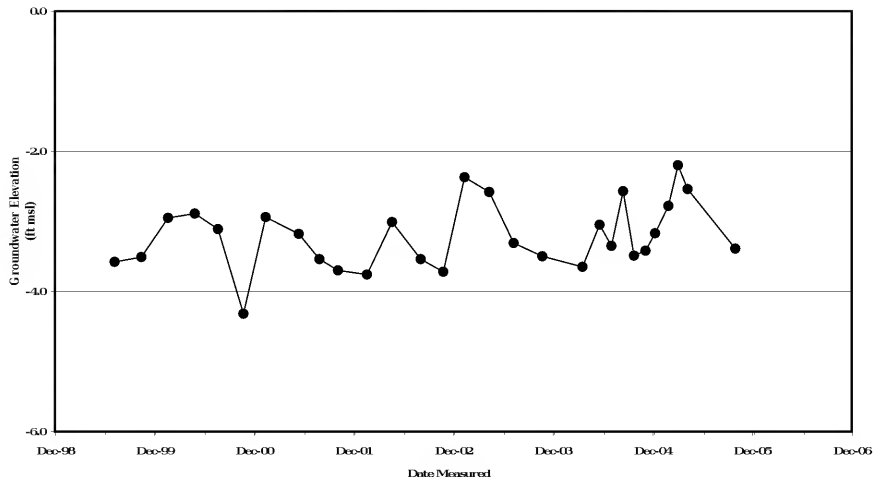


FIGURE D-11

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-20

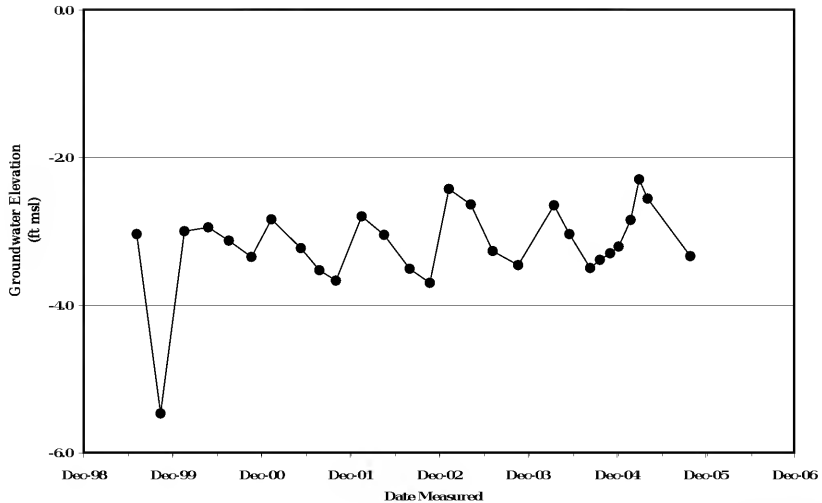
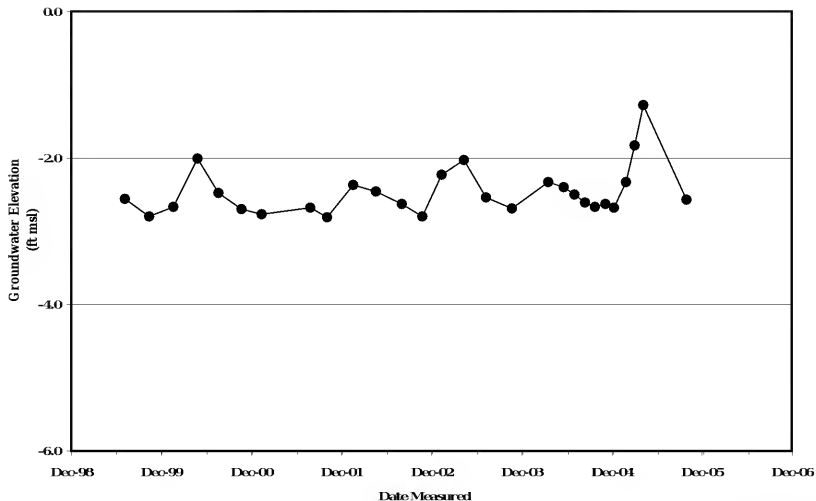
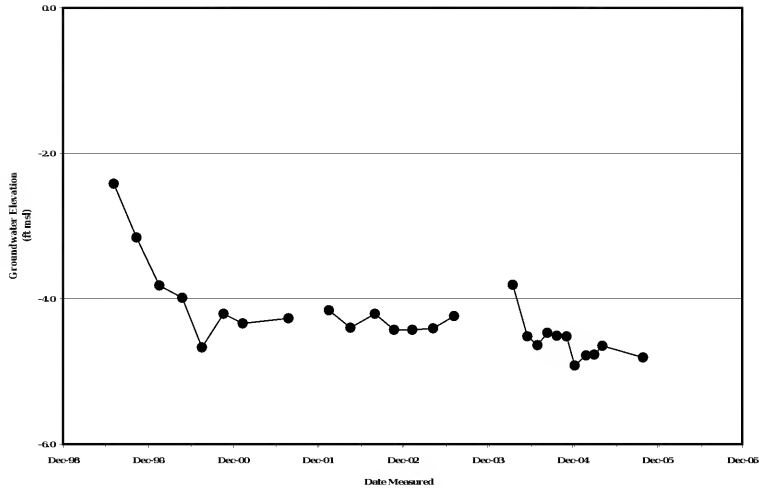


FIGURE D-12

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-22



**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT**  
**GROUNDWATER HYDROGRAPH, WELL W1-23**



## Notes

1. Breaks in hydrograph line indicate that the collection trench was dry during the respective time period.

**FIGURE D-14**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-21**

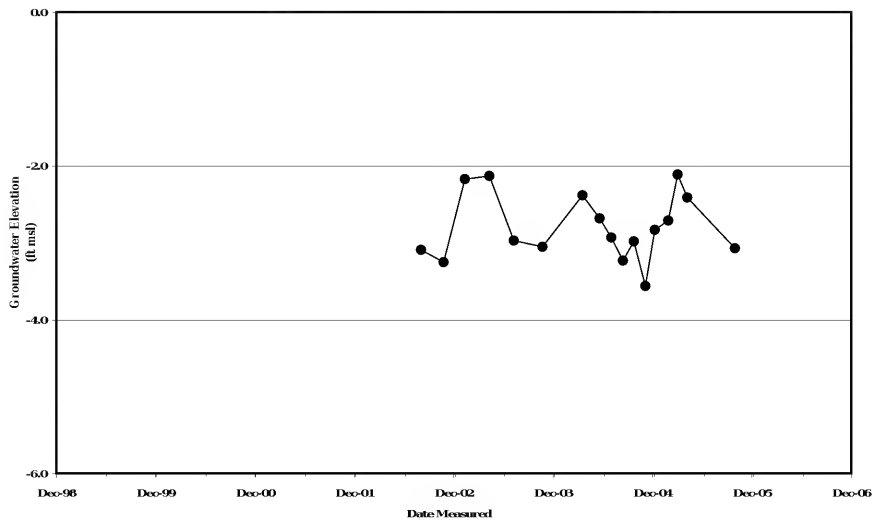
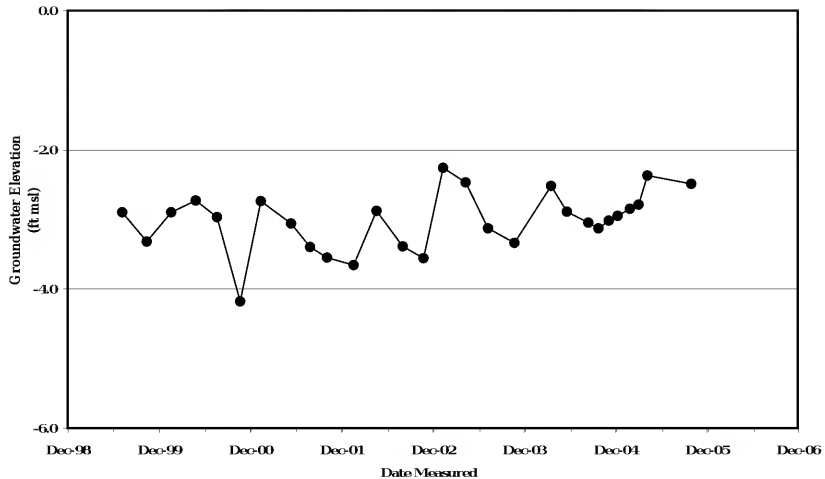




FIGURE D-15

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, PIEZOMETER PZ1-18



**FIGURE D-16**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL PZ1-21**

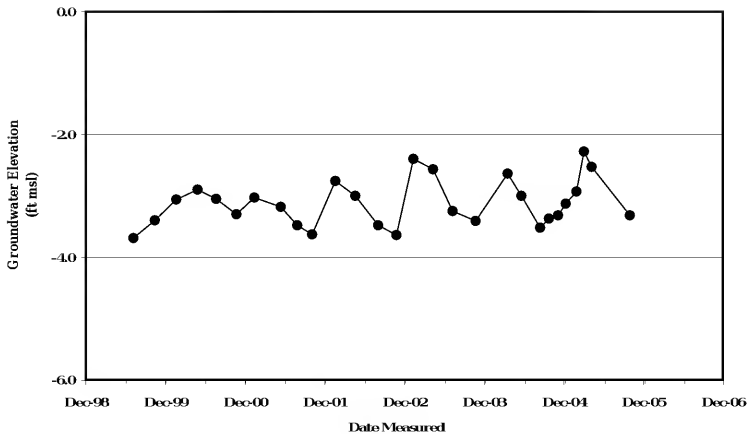
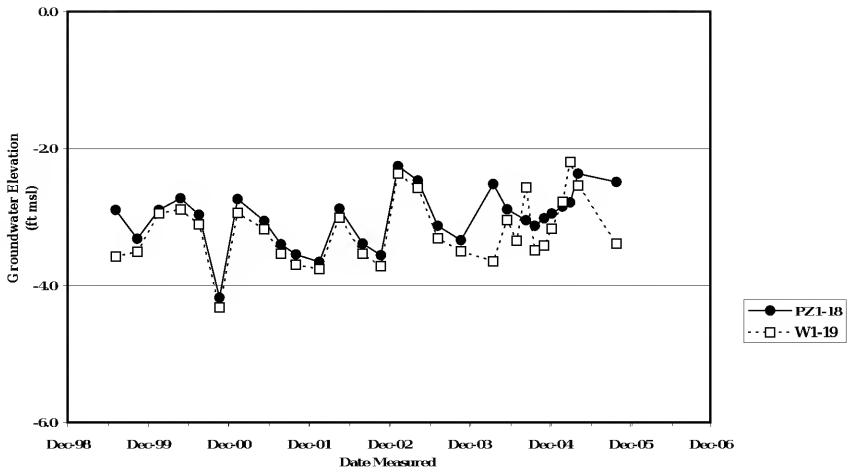


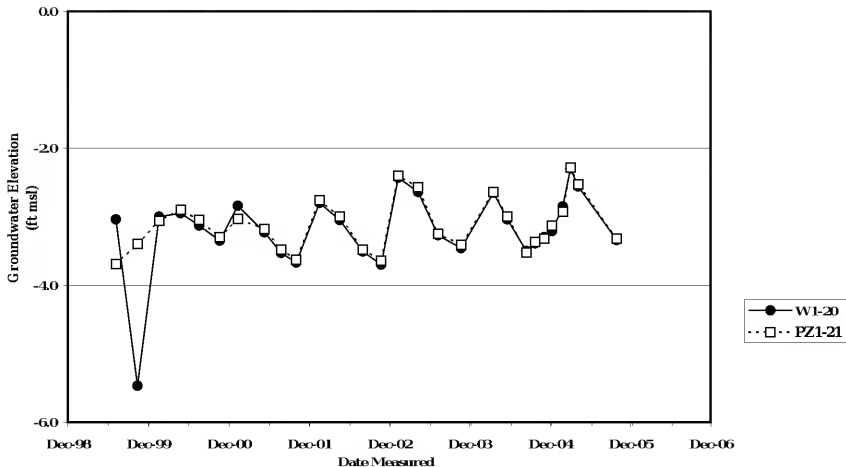
FIGURE D-17

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPHS, PIEZOMETER PZ1-18 AND WELL W1-19



**FIGURE D-18**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPHS, PIEZOMETER PZ1-21 AND WELL W1-20**

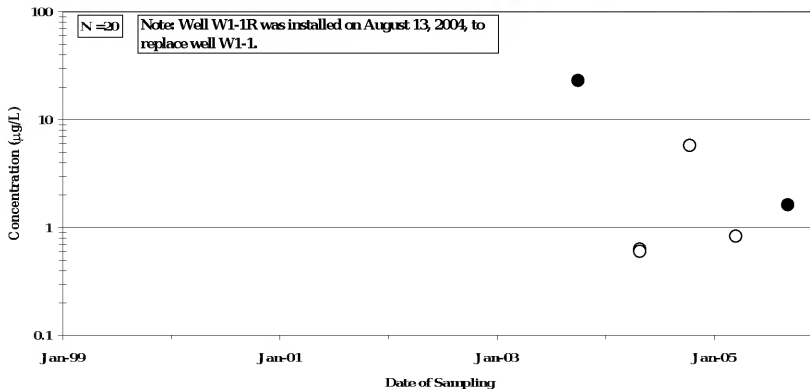


**APPENDIX E**

**GROUNDWATER MONITORING POINT DATA GRAPHS**

**FIGURE E-1**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED ARSENIC CONCENTRATIONS IN DOWNGRADE MONITORING WELL W1-1/ W1-1R**

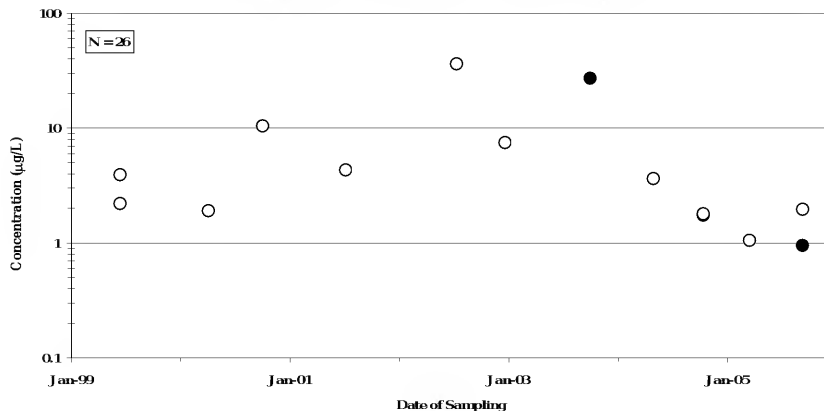


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-2**

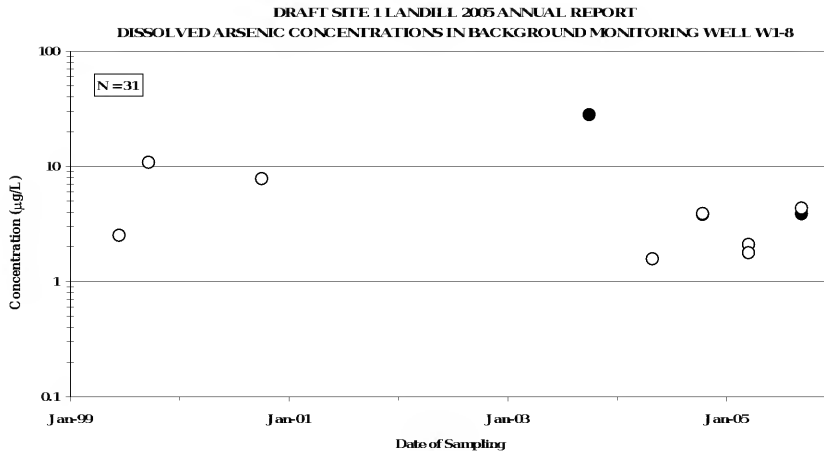
**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED ARSENIC CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5**



**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-3**

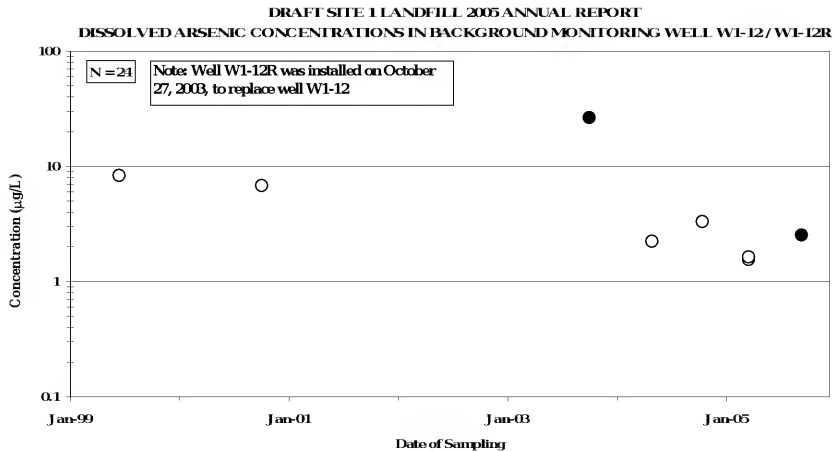


**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



FIGURE E-4

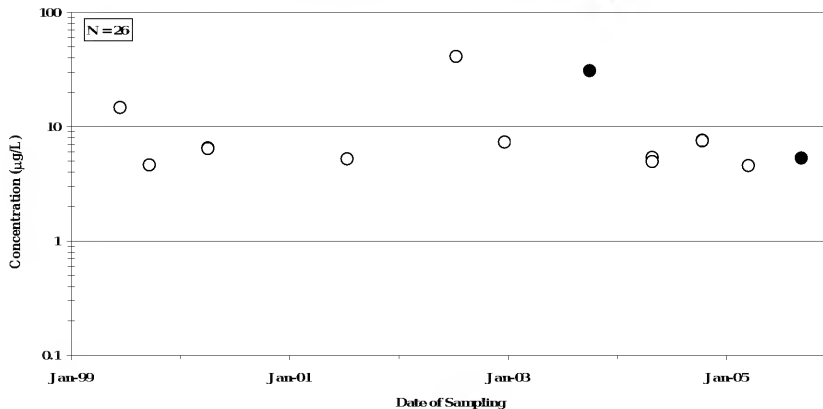


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

FIGURE E-5

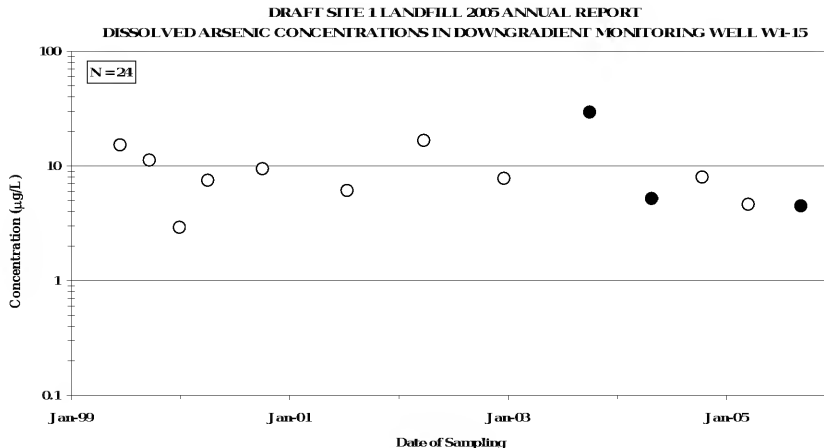
DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED ARSENIC CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14



**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

FIGURE E-6

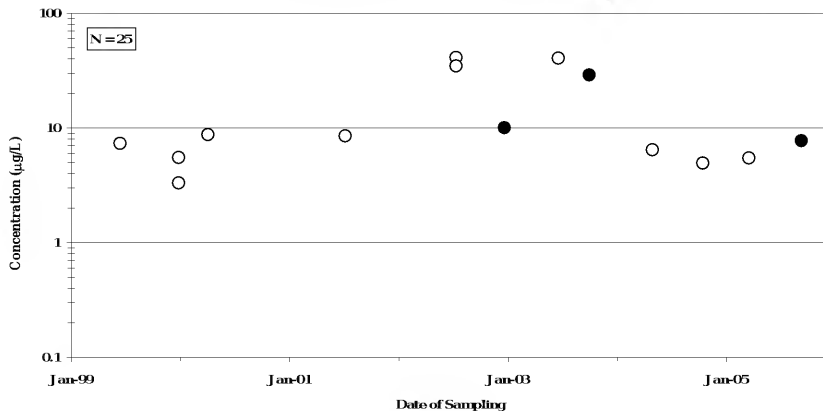


**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-7**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED ARSENIC CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-16**

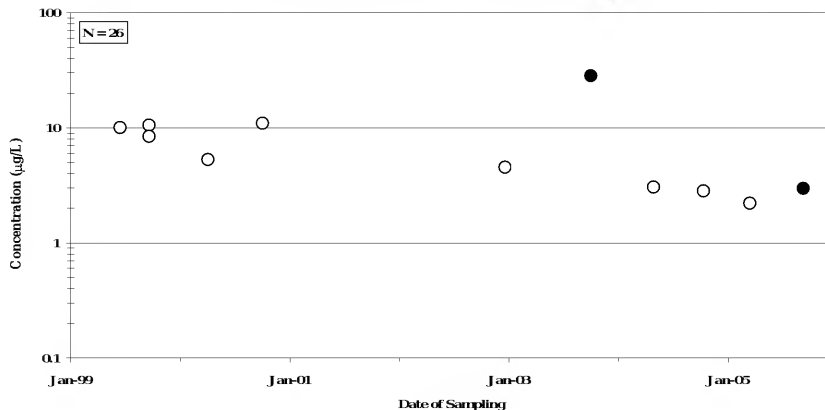


**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

FIGURE E-8

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED ARSENIC CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-19

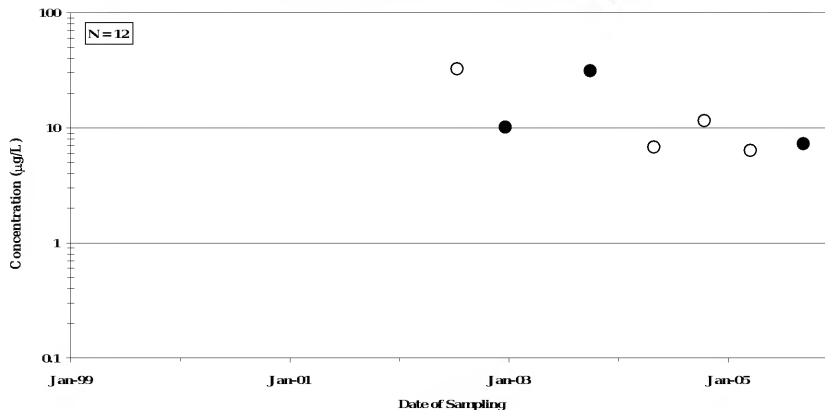


**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-9**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED ARSENIC CONCENTRATIONS IN DOWNGRAIENT MONITORING WELL W1-24**

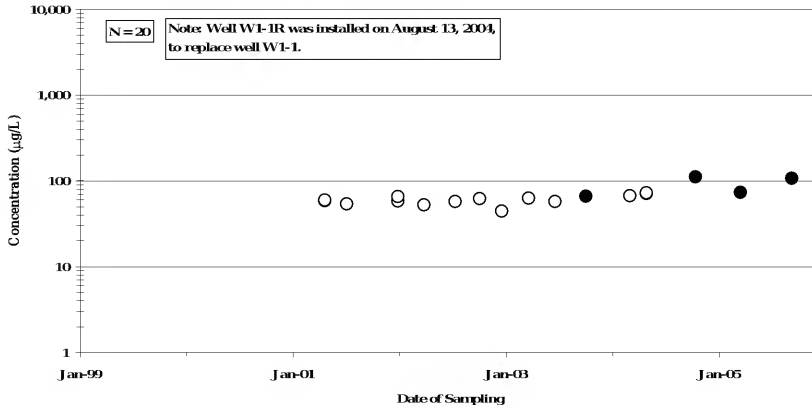


**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

FIGURE E-10

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED BARIUM CONCENTRATIONS IN DOWNGRADIENT MONITORING WELL W1-1 / W1-1R



**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT**  
**DISSOLVED BARIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL WI-5**



1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

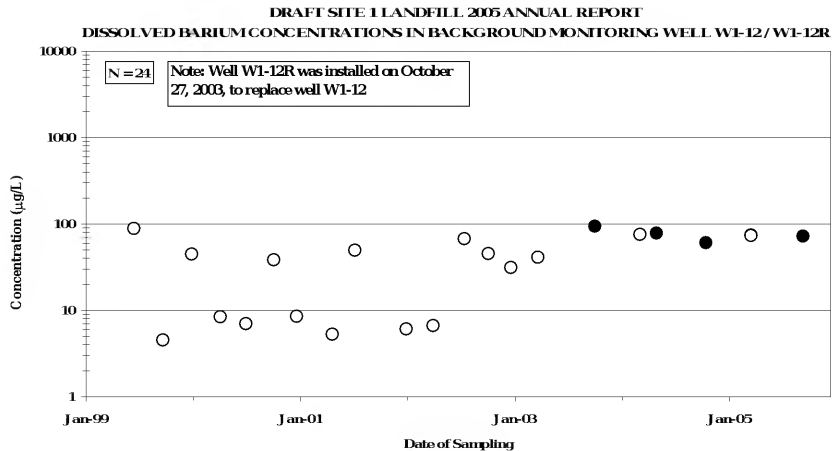


**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT**  
**DISSOLVED BARIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL WI-8**



1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

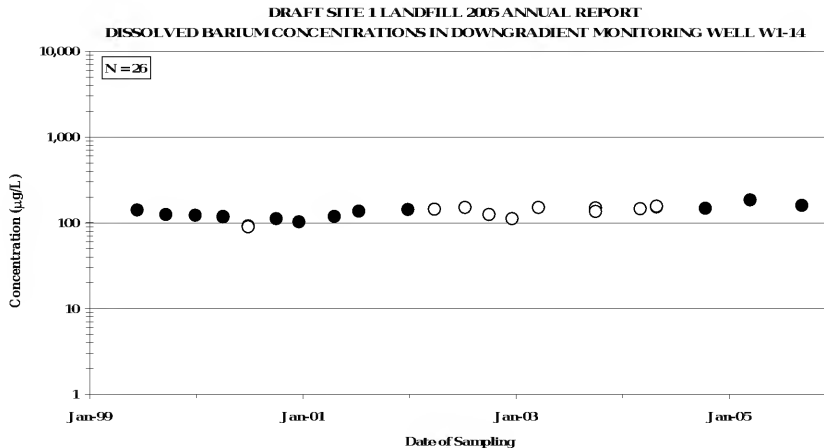
FIGURE E-13



**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

FIGURE E-14



**Notes**

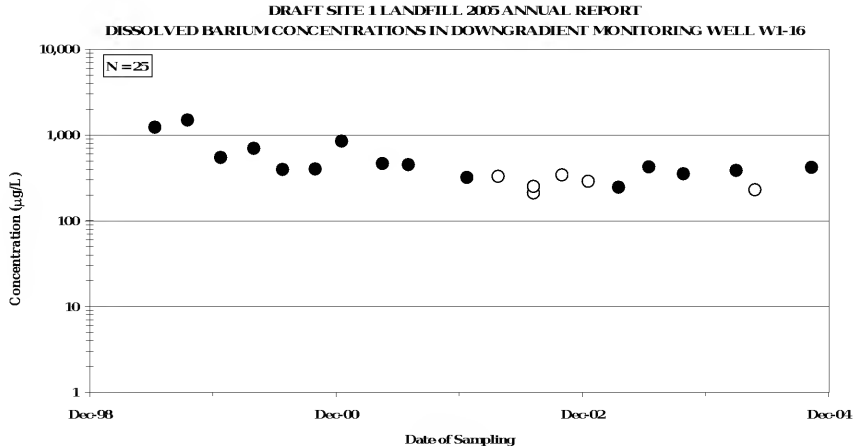
1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT**  
**DISSOLVED BARIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL WI-15**



1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

FIGURE E-16



**Notes**

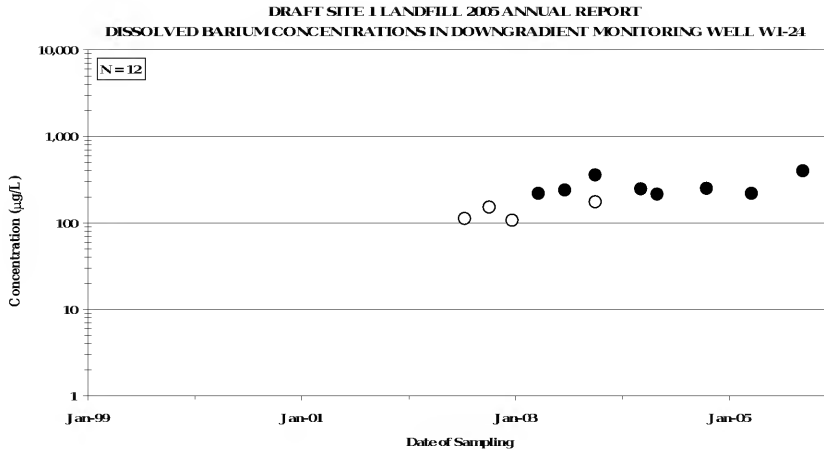
1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT**  
**DISSOLVED BARIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL WI-19**



- Draft Site 1 Landfill 2005 Annual Report  
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DCN: FWSD-RAC-06-0663  
CTO No. 0086

FIGURE E-18

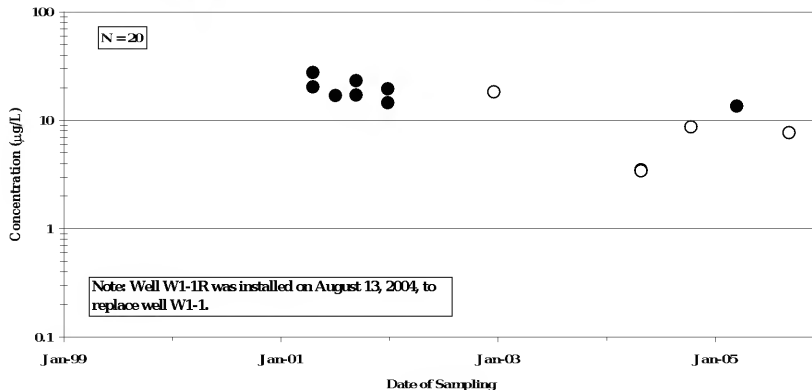


**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

FIGURE E-19

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COBALT CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-1/ W1-1R



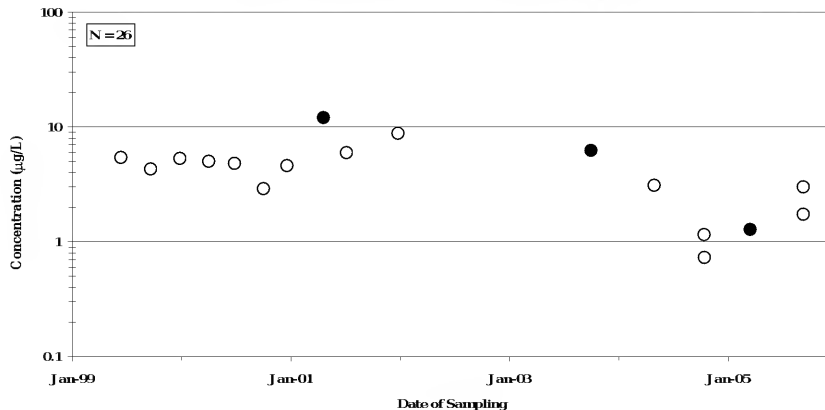
**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4.  $N$  = Total number of samples.



FIGURE E-20

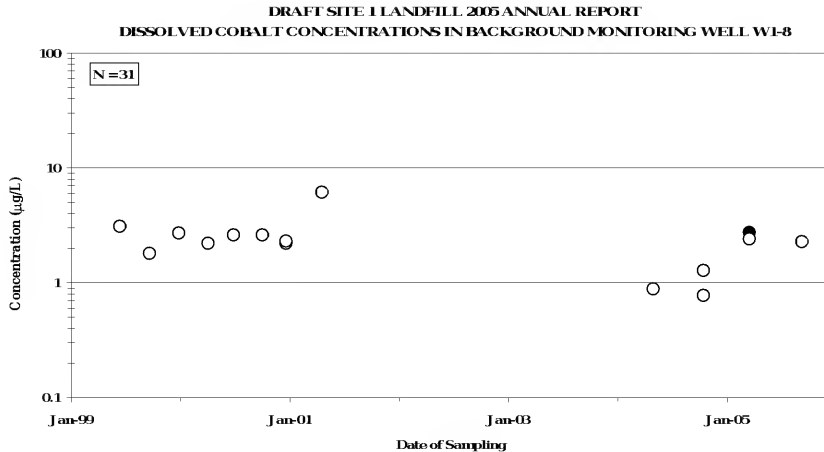
DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COBALT CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5



**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

FIGURE E-21

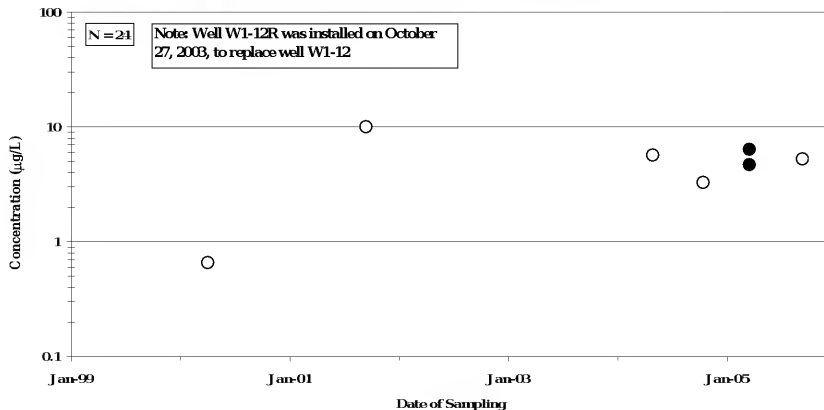


**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

FIGURE E-22

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COBALT CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12/ W1-12R

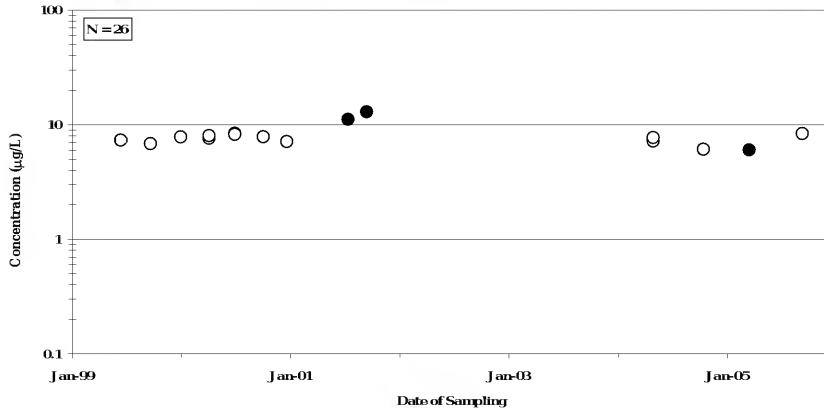


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

FIGURE E-23

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COBALT CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14

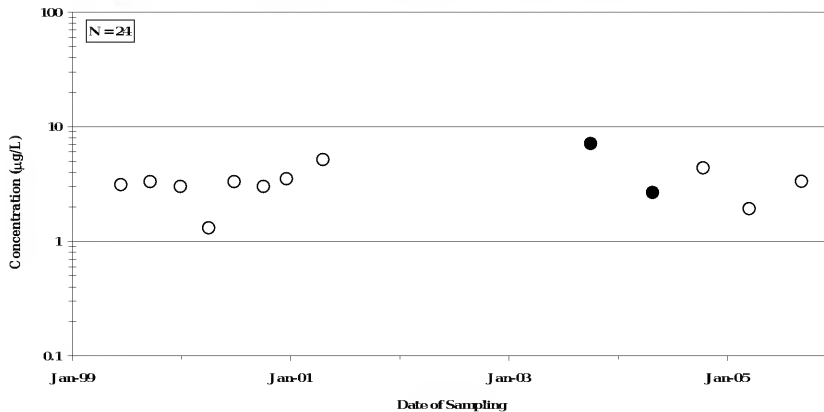


**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-21**

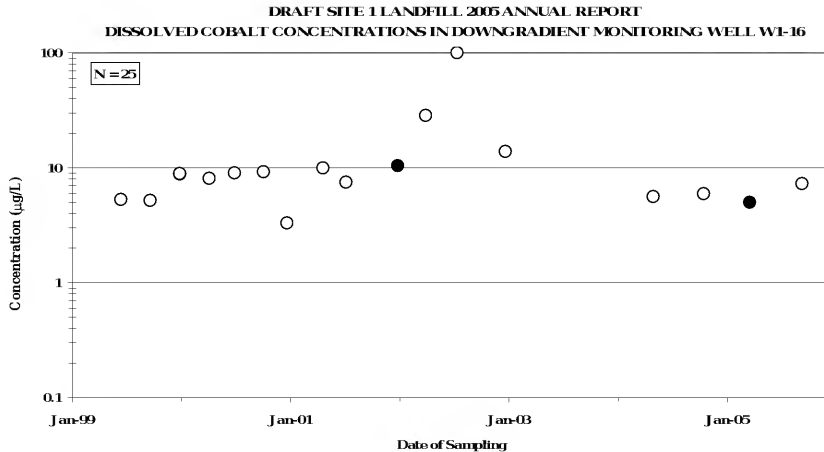
**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COBALT CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-15**



**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

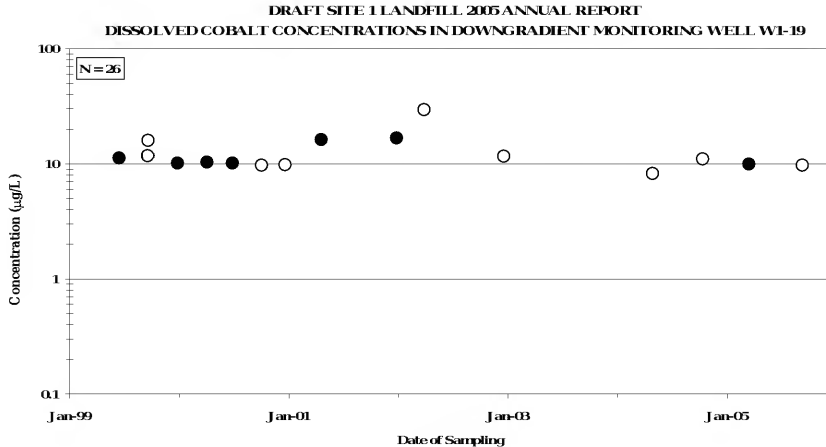
FIGURE E-25



**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4.  $N$  = Total number of samples.

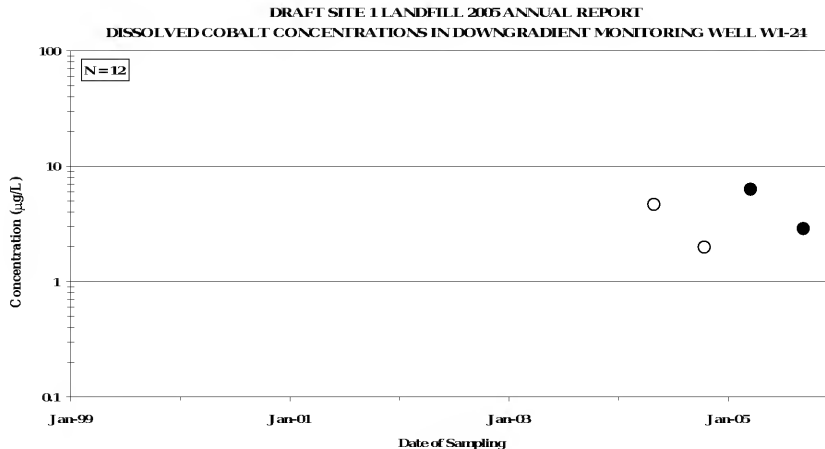
FIGURE E-26



**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

FIGURE E-27



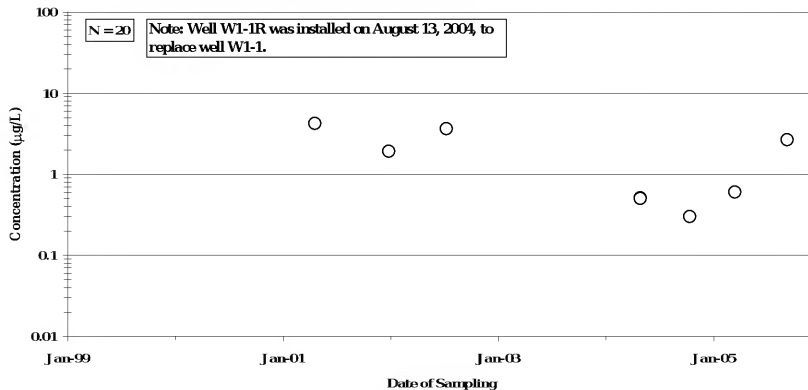
**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



FIGURE E-2B

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COPPER CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-1/ W1-1R

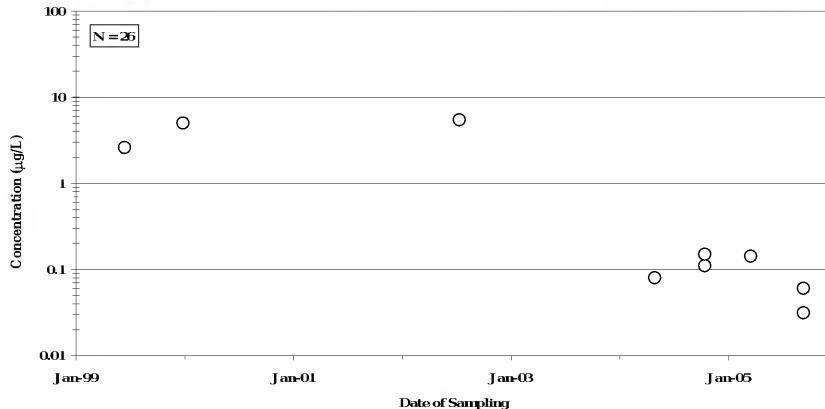


Notes:

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-29**

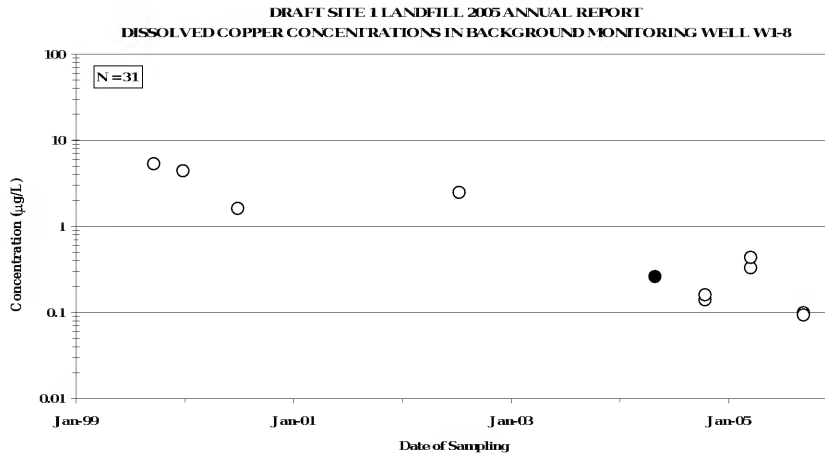
**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COPPER CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5**



**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-30**

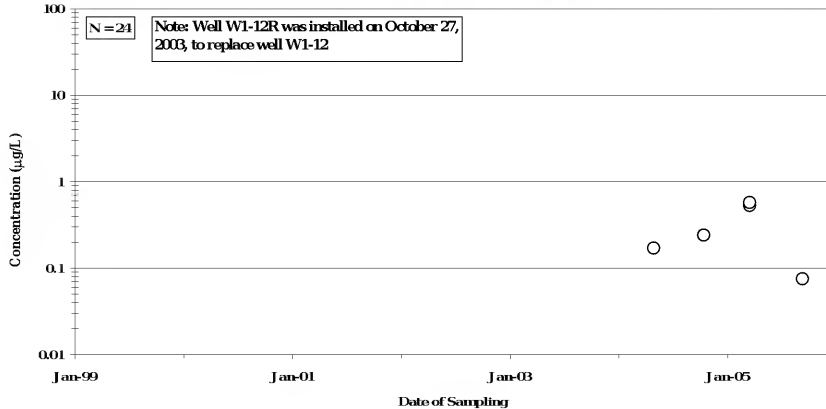


**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

FIGURE E-31

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COPPER CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12/ W1-12R

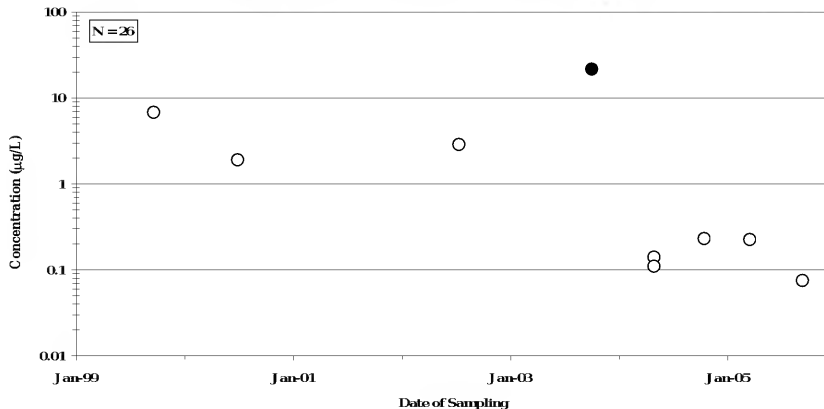


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

FIGURE E-32

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COPPER CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14

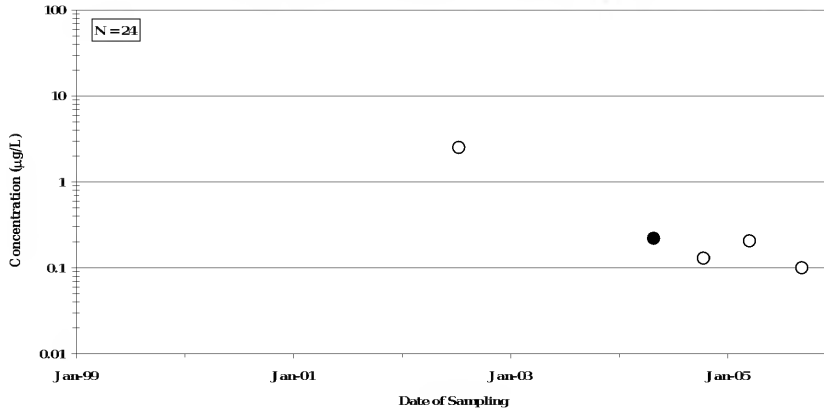


**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-33**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COPPER CONCENTRATIONS IN DOWNGRAIENT MONITORING WELL W1-15**

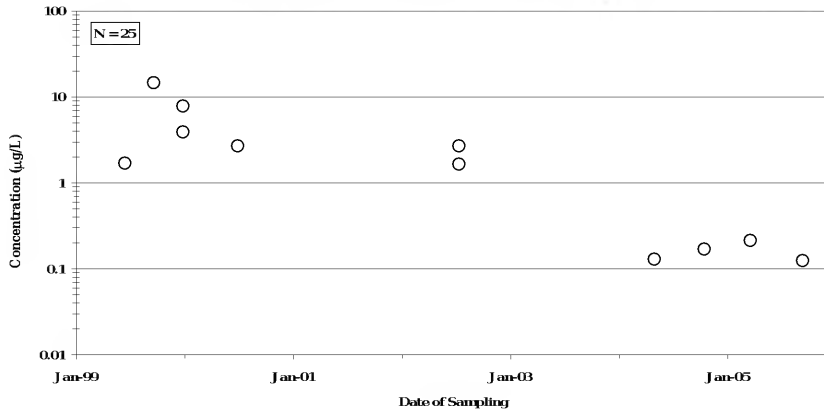


**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-34**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COPPER CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-16**

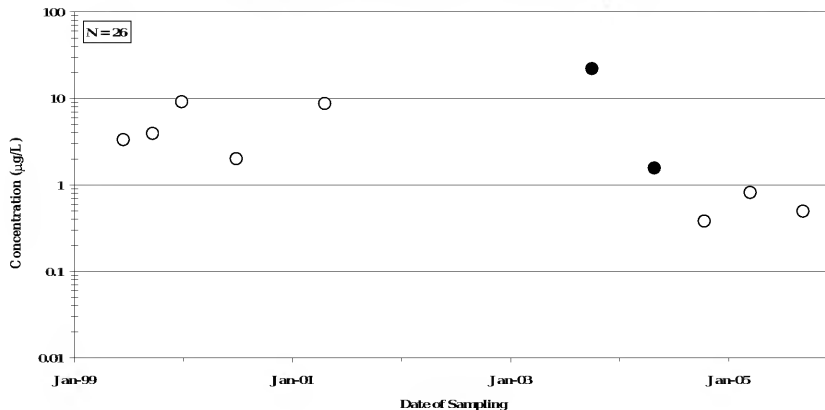


**Notes**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

FIGURE E-35

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COPPER CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-19



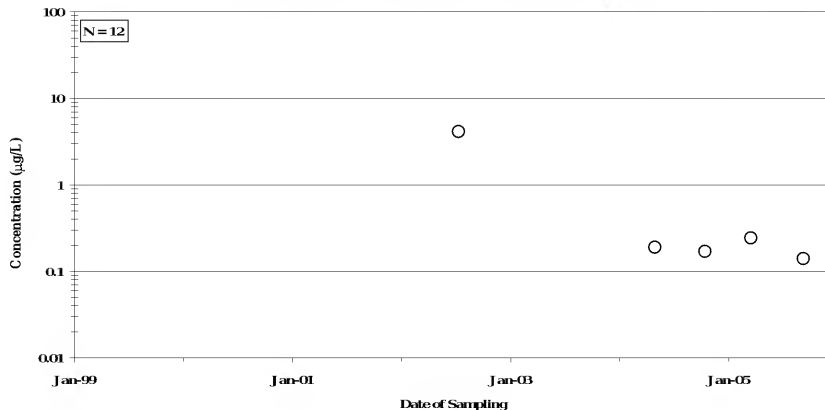
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



FIGURE E-36

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COPPER CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL WI-24



**Notes**

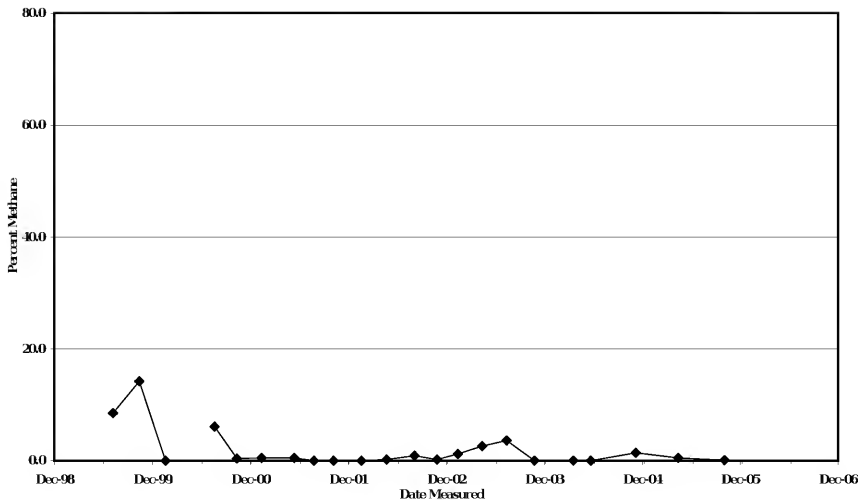
1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

## **APPENDIX F**

### **METHANE MONITORING DATA GRAPHS**

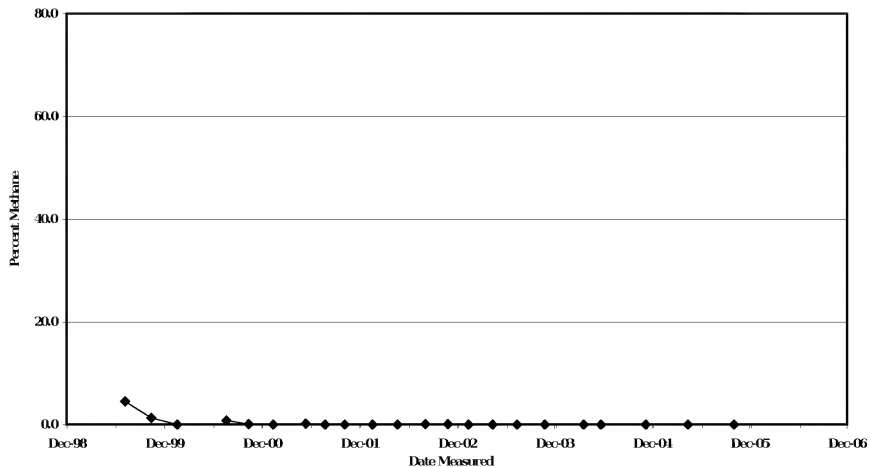
FIGURE F-1

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-1



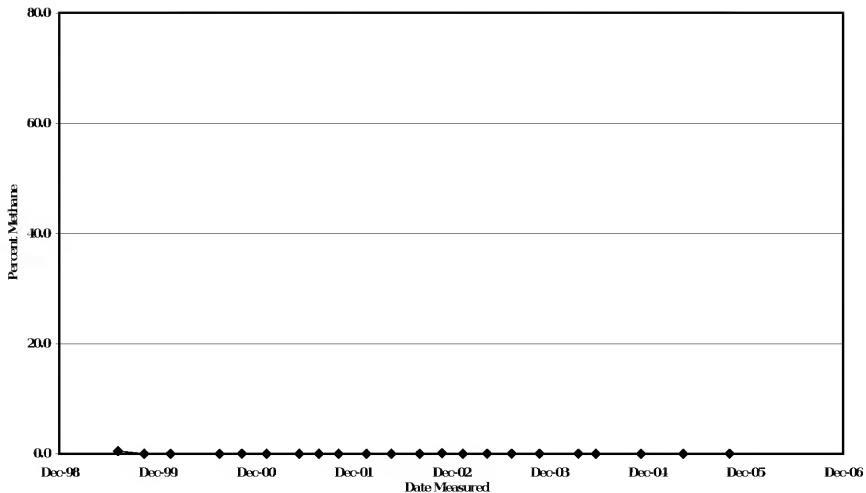
**FIGURE F-2**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-2**



**FIGURE F-3**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-3**



**FIGURE F-4**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-4**

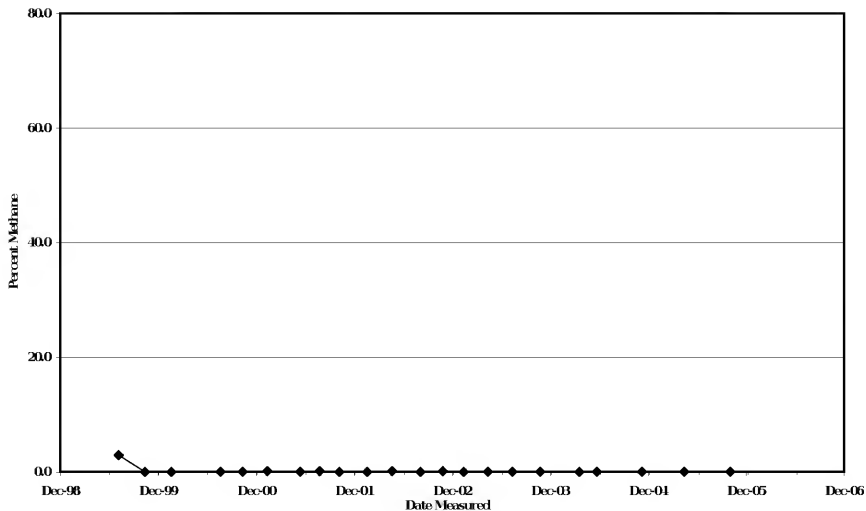


FIGURE F-5

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-5

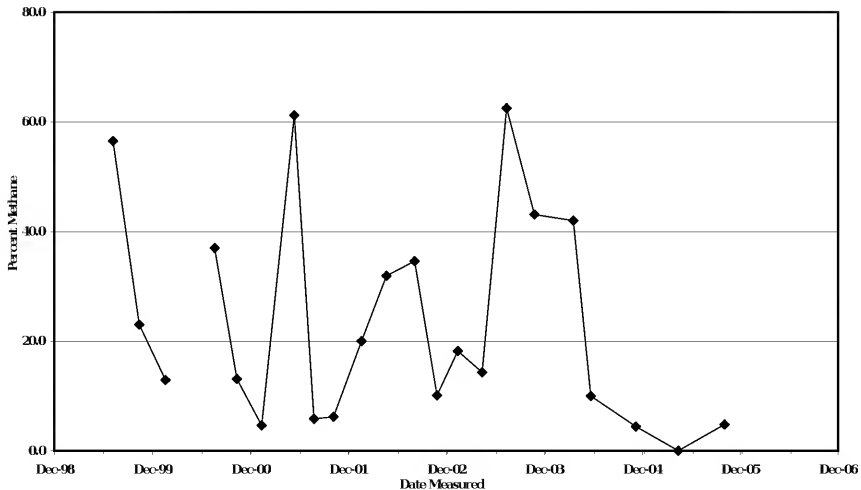


FIGURE F-6

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-6

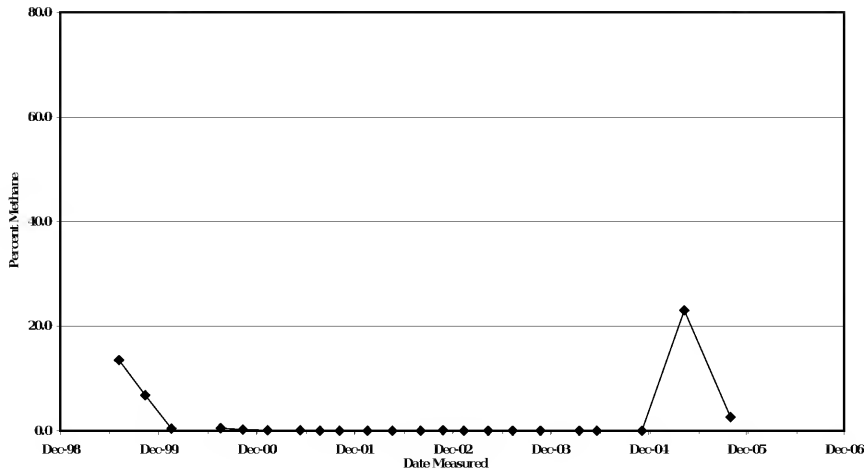
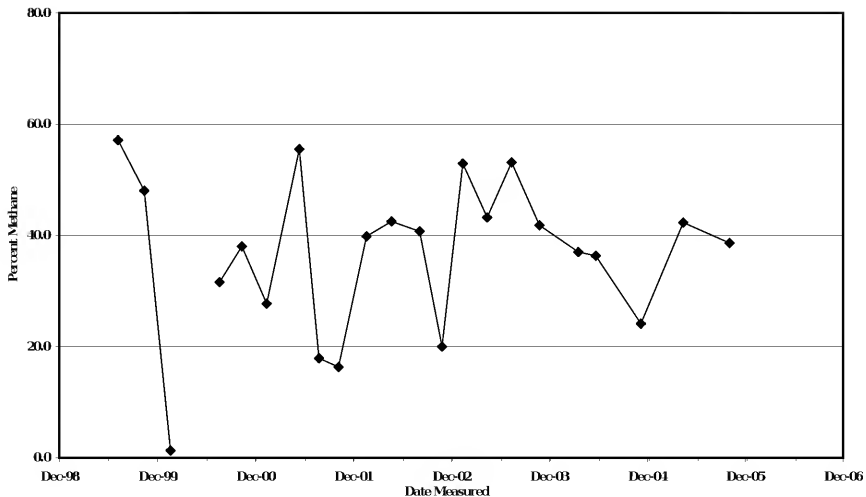




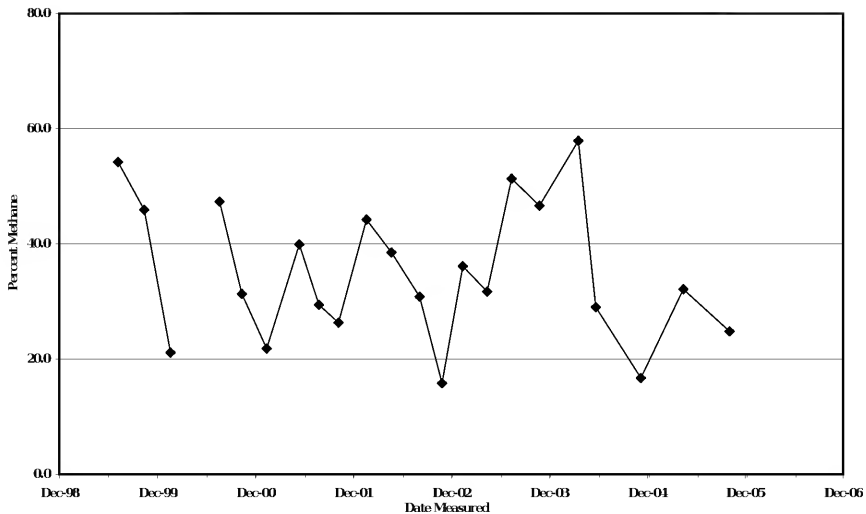
FIGURE F-7

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-7



**FIGURE F-8**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-8**



**FIGURE F-9**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-9**

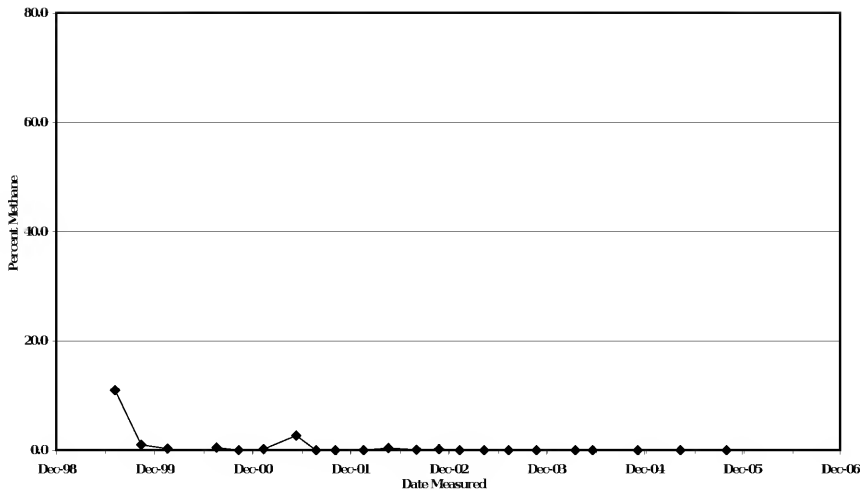


FIGURE F-10

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-10

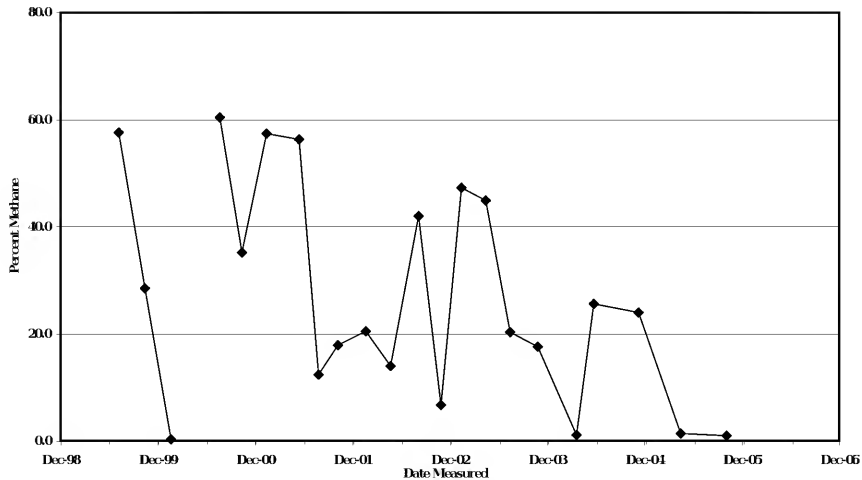


FIGURE F-11

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-11

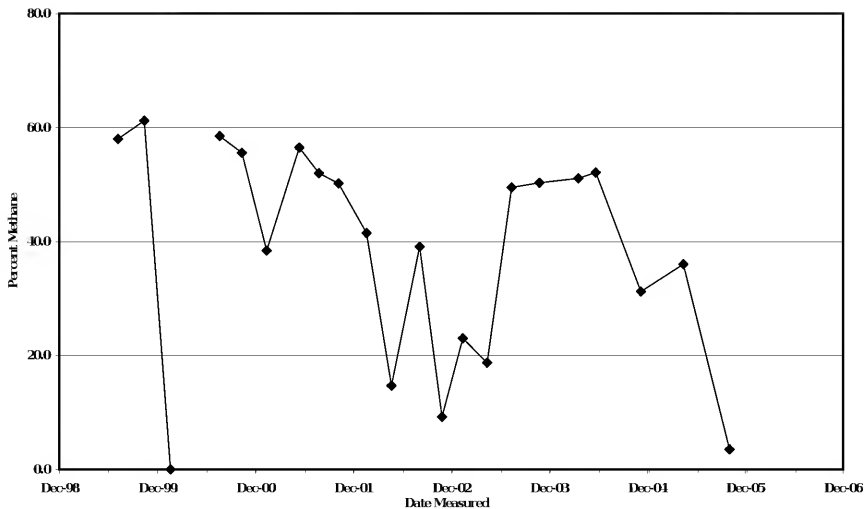


FIGURE F-12

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-12

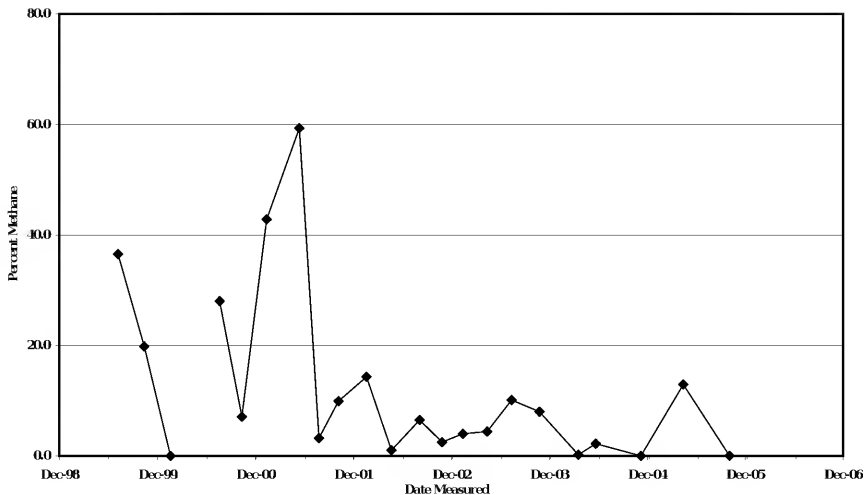


FIGURE F-13

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-13

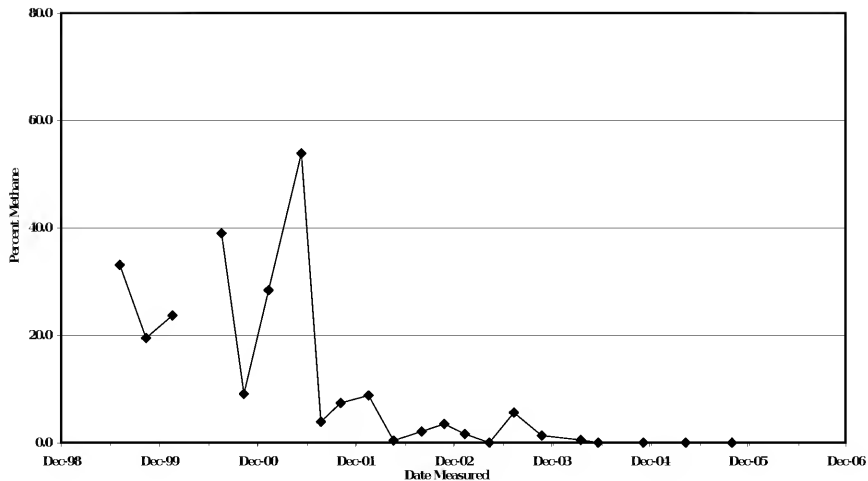


FIGURE F-14

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-14

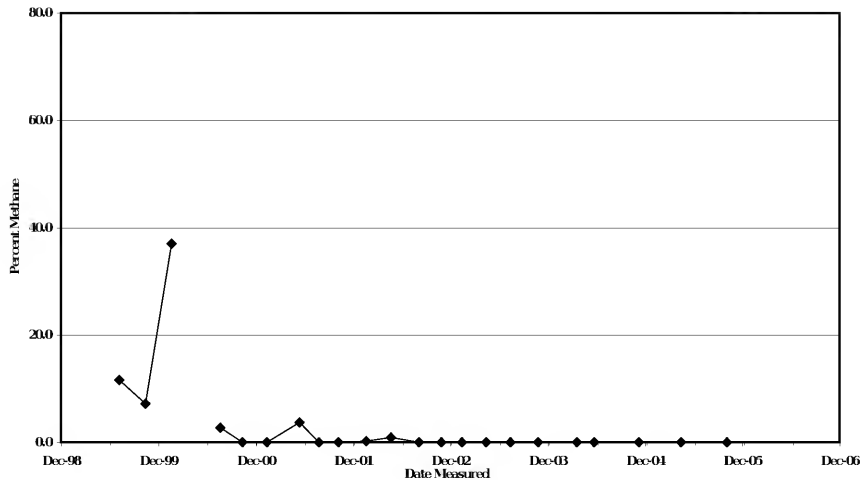




FIGURE F-15

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-15

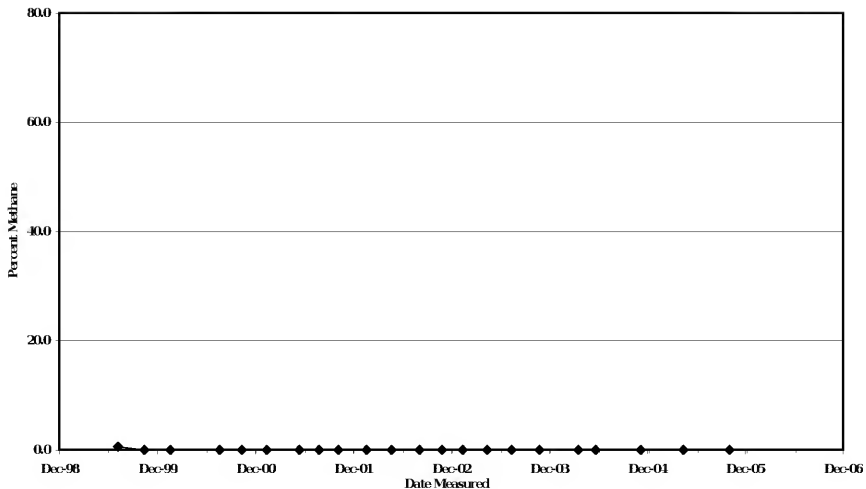


FIGURE F-16

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-16

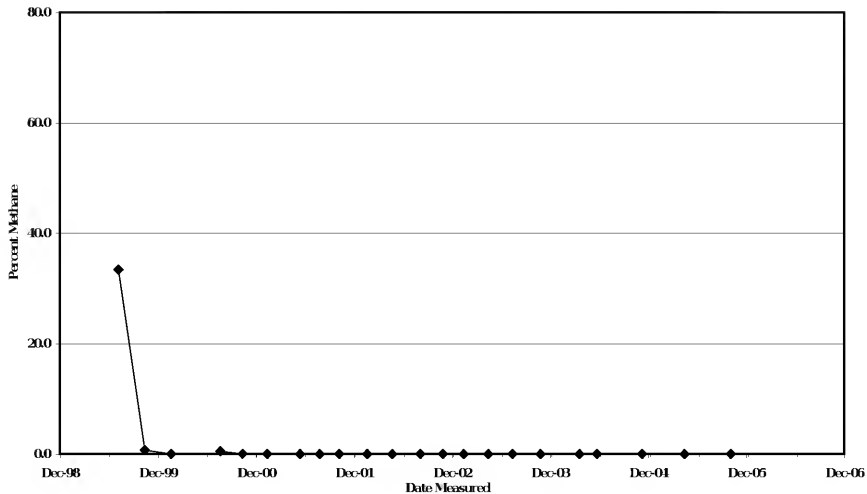
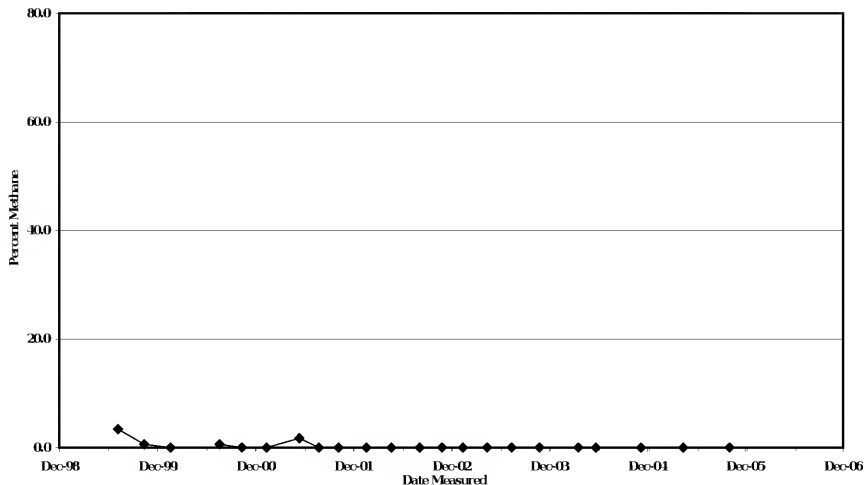


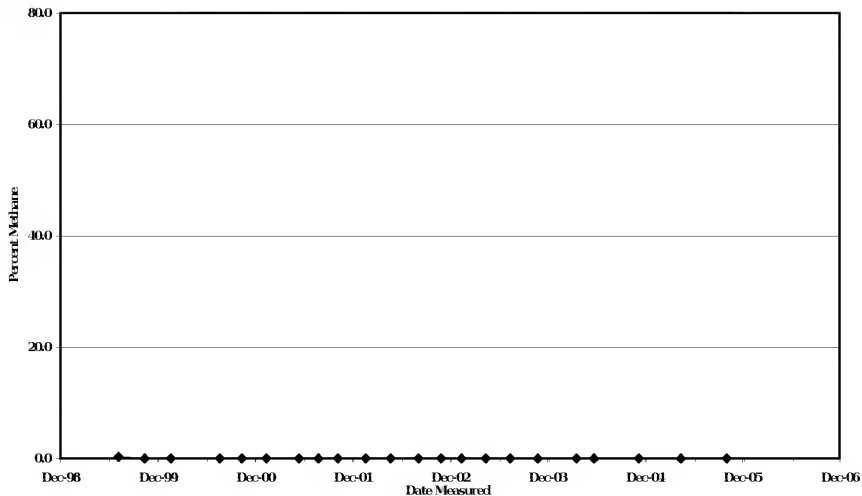
FIGURE F-17

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-17



**FIGURE F-18**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-18**



**FIGURE F-19**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-19**

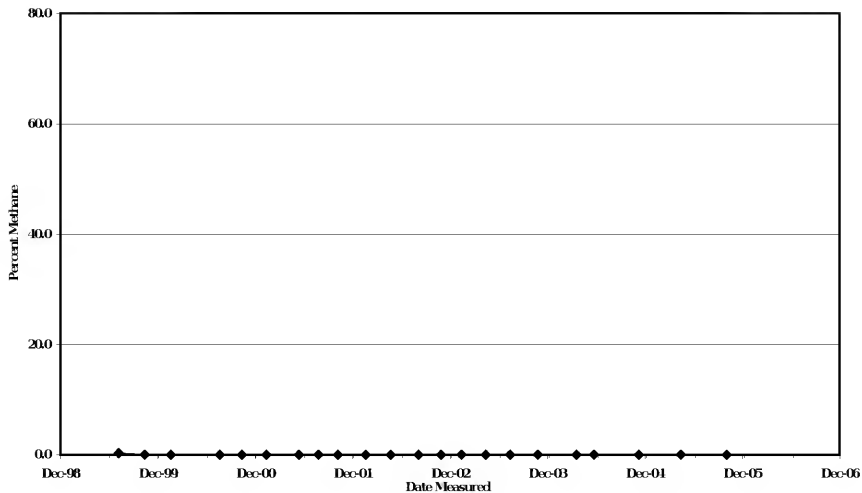
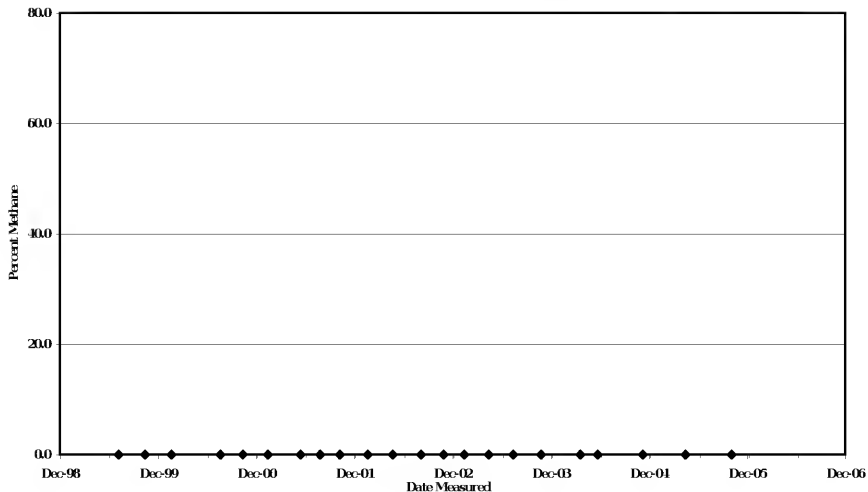


FIGURE F-20

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, LANDFILL GAS MONITORING WELL LGMW1-1



**FIGURE F-22**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, LANDFILL GAS MONITORING WELL LGMW1-3**

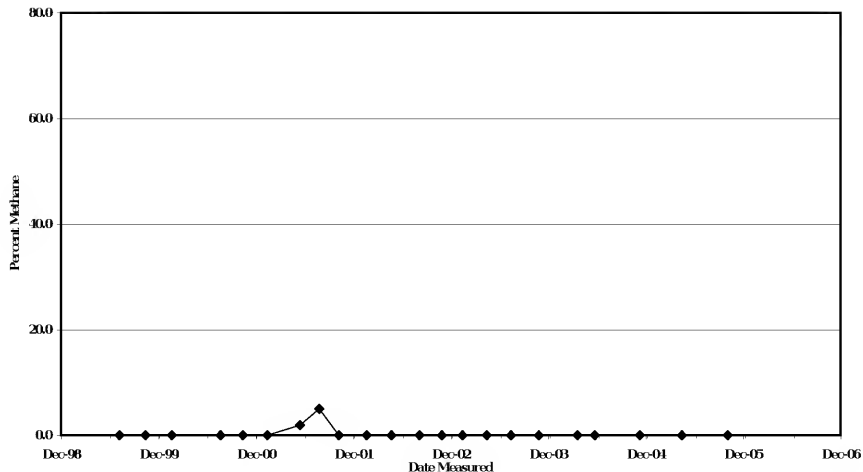
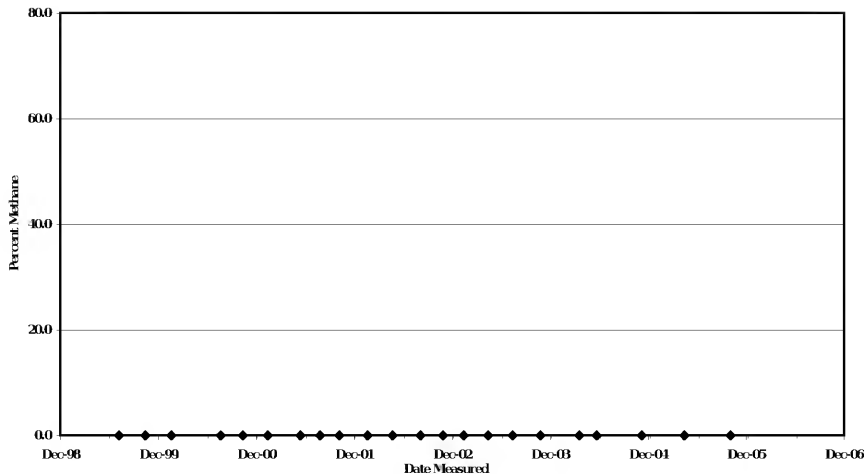


FIGURE F-23

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, LANDFILL GAS MONITORING WELL LGMW1-4





**APPENDIX G**

**2005 GENERAL SITE INSPECTION REPORTS AND**  
**2005 SANTA CLARA COUNTY LANDFILL INSPECTION REPORTS**

## **2005 GENERAL SITE INSPECTION REPORTS**

TABLE 4-1

Page 1 of 2

## SITE 1 LANDFILL GENERAL INSPECTION CHECKLIST AND FREQUENCY

Item	Frequency <sup>a</sup>	Condition			Comments
		Good	Needs Maintenance	N/A	
<i>General Site Conditions</i>					
- Perimeter Road	Semiannual	✓			<i>NO GARB SIGNS NONE FOUND</i>
- Landfill signs	Semiannual	✓			
- Inspect for nesting owls and burrowing animals	Semiannual	✓			
- Security fencing and gates	Semiannual	✓			
- Raptor	Semiannual	✓			
- Raptor perches	Semiannual	✓			
<i>Landfill Cap</i>					
- Iso-settlement and surveying landfill settlement markers	Every 5 Years <sup>b</sup>	✓			<i>Completed 3/3/05</i>
- Erosion	Semiannual	✓			
- Visual observations of settling (i.e., cracking, slumping)	Semiannual	✓			
- Vegetation control and restoration	Semiannual	✓			
- Cap breaching	Semiannual	✓			<i>YES BUT NOT GOOD MAINTENANCE</i>
- Water drainage	Semiannual	✓			
<i>Landfill Gas Vents</i>					
- Rise condition (i.e., paint, integrity)	Semiannual	✓			
- Identification tag present	Semiannual	✓			
- Concrete collar condition	Semiannual	✓			
- Screen condition	Semiannual	✓			
<i>Landfill Gas Monitoring Wells</i>					
- Rise condition (i.e., paint, integrity)	Semiannual	✓			
- Identification tag present	Semiannual	✓			
- Traffic protection (i.e., bollards)	Semiannual	✓			
- Concrete collar condition	Semiannual	✓			
- Well cap integrity	Semiannual	✓			
- Water drainage	Semiannual	✓			
- Well locks	Semiannual	✓			
<i>Collection Trench Wells</i>					
- Concrete collar condition	Semiannual	✓			
- Protective cover condition	Semiannual	✓			
- Identification number legibility	Semiannual	✓			

Site 11 Landfill Post-Closure Long-Term Maintenance Plan

TABLE 4-1

## SITE 1 LANDFILL GENERAL INSPECTION CHECKLIST AND FREQUENCY

Item	Frequency <sup>3</sup>	Condition		Comments
		Good	Needs Maintenance	
- Well cap integrity	Semiannual	✓		
- Water drainage	Semiannual	✓		
- Well locks	Semiannual	✓		
<i>Groundwater Monitoring Wells and Piezometers</i>				
- Riser condition (i.e., paint, integrity, cover)	Semiannual	✓	✓	W-18 Needs Paint 2/15
- Identification number legibility	Semiannual	✓		
- Concrete collar condition	Semiannual	✓		
- Traffic protection (i.e., bollards)	Semiannual	✓		
- Well cap integrity	Semiannual	✓		
- Water drainage	Semiannual	✓		
- Well locks	Semiannual	✓		
<i>Stormwater Runoff Control</i>				
- Water drainage	Semiannual	✓		Screens in Place
- Culvert and trench drainage	Semiannual	✓		
- Riprap	Semiannual	✓		
- Erosion	Semiannual	✓		
- Settlement	Semiannual	✓		

## Notes:

(a) Frequency indicates minimum requirements. Semiannual inspections will be conducted in March and September, except for the stormwater runoff control, which will be inspected before the October rainy season and in May at the end of the rainy season. Inspections also are required after significant storm events and as needed.

(b) Every 5 years from the previous surveying and iso-settlement mapping.

## Abbreviations and Acronyms:

N/A - not applicable

*Wage* 3/28/05

TABLE 4-1

Page 1 of 2

## SITE 1 LANDFILL GENERAL INSPECTION CHECKLIST AND FREQUENCY

Item	Frequency <sup>a</sup>	Condition		Comments
		Good	Needs Maintenance	
<i>General Site Conditions</i>				
- Perimeter Road	Semiannual	✓		
- Landfill signs	Semiannual	✓		
- Impact for nesting owls and burrowing animals	Semiannual	✓		ONE Small Burrow Found
- Security fencing and gates	Semiannual	✓		ONE SIGN MISSING
- Riprap	Semiannual	✓		
- Raptor perches	Semiannual	✓		
<i>Landfill Cap</i>				
- Top settlement and surveying landfill settlement markers	Every 5 Years <sup>b</sup>			
- Erosion	Semiannual	✓		
- Visual observations of settling (i.e., cracking, sloughing)	Semiannual	✓		
- Vegetation control and restoration	Semiannual	✓		
- Cap breaching	Semiannual	✓		
- Water drainage	Semiannual	✓		
<i>Landfill Gas Vents</i>				
- Rise condition (i.e., paint, integrity)	Semiannual	✓		
- Identification tag present	Semiannual	✓		
- Concrete collar condition	Semiannual	✓		
- Screen condition	Semiannual	✓		
<i>Landfill Gas Monitoring Wells</i>				
- Rise condition (i.e., paint, integrity)	Semiannual	✓		
- Identification tag present	Semiannual	✓		
- Traffic protection (i.e., bollards)	Semiannual	✓		
- Concrete collar condition	Semiannual	✓		
- Well cap integrity	Semiannual	✓		
- Water damage	Semiannual	✓		
- Well locks	Semiannual	✓		
<i>Collection Trench Wells</i>				
- Concrete collar condition	Semiannual	✓		
- Protective cover condition	Semiannual	✓		
- Identification number legibility	Semiannual	✓		

TABLE 4-1

## SITE 1 LANDFILL GENERAL INSPECTION CHECKLIST AND FREQUENCY

Item	Frequency <sup>a</sup>	Condition		Comments
		Good	Needs Maintenance	
- Well cap integrity	Semiannual	✓		
- Water drainage	Semiannual	✓		
- Well locks	Semiannual	✓		
<i>Groundwater Monitoring Wells and Piezometers</i>				
- Rise condition (i.e., paint, integrity, cover)	Semiannual		✓	W-18 above faulting
- Identification number legibility	Semiannual	✓		
- Concrete collar condition	Semiannual	✓		
- Traffic protection (i.e., bollards)	Semiannual	✓		
- Well cap integrity	Semiannual	✓		
- Water drainage	Semiannual	✓		
- Well locks	Semiannual	✓		
<i>Stormwater Runoff Control</i>				
- Water drainage	Semiannual	✓		
- Culvert and trench drainage	Semiannual	✓		
- Riprap	Semiannual	✓		
- Erosion	Semiannual	✓		
- Settlement	Semiannual	✓		
<i>Scrub on W-18</i>				

## Notes:

(a) Frequency indicates minimum requirements. Semiannual inspections will be conducted in March and September, except for the stormwater runoff control, which will be inspected before the October rainy season and in May at the end of the rainy season. Inspections also are required after significant storm events and as needed.

(b) Every 5 years from the previous surveying and iso-settlement mapping.

## Abbreviations and Acronyms:

N/A - not applicable

5/19/05  
[Signature]

TABLE 4-1

## SITE 1 LANDFILL GENERAL INSPECTION CHECKLIST AND FREQUENCY

Item	Frequency <sup>3</sup>	Condition		Comments
		Good	Needs Maintenance	
<i>General Site Conditions</i>				
- Perimeter Road	Semiannual	✓		
- Landfill signs	Semiannual	✓		
- Inspect for nesting owls and burrowing animals	Semiannual	✓		Two Burrows - East Side
- Security fencing and gates	Semiannual	✓		
- Riprap	Semiannual	✓		
- Raptor perches	Semiannual	✓		
<i>Landfill Cap</i>				
- Iso-settlement and surveying landfill settlement markers	Every 5 Years <sup>4</sup>	✓		
- Erosion	Semiannual	✓		
- Visual observations of settling (i.e., cracking, sloughing)	Semiannual	✓		
- Vegetation control and restoration	Semiannual		Needs Mounds	Setbacks for Mounds in Sept.
- Cap bracing	Semiannual	✓		
- Water drainage	Semiannual	✓		
<i>Landfill Gas Vents</i>				
- Riser condition (i.e., paint, integrity)	Semiannual	✓		
- Identification tag present	Semiannual	✓		
- Concrete collar condition	Semiannual	✓		
- Screen condition	Semiannual	✓		
<i>Landfill Gas Monitoring Wells</i>				
- Riser condition (i.e., paint, integrity)	Semiannual	✓		
- Identification tag present	Semiannual	✓		
- Traffic protection (i.e., bollards)	Semiannual	✓		
- Concrete collar condition	Semiannual	✓		
- Well cap integrity	Semiannual	✓		
- Water drainage	Semiannual	✓		
- Well locks	Semiannual	✓		
<i>Collection Trench Walls</i>				
- Concrete collar condition	Semiannual	✓		
- Protective cover condition	Semiannual	✓		
- Identification number legibility	Semiannual	✓		

Site 1 Landfill Post-Closure Long-Term Maintenance Plan

Former Naval Air Station Moffett Field

DCN: FVSD-BAC-04-2009

CDO No. 0054, Revision 0, 09/18/04

TABLE 4-1

## SITE 1 LANDFILL GENERAL INSPECTION CHECKLIST AND FREQUENCY

Item	Frequency <sup>a</sup>	Condition		Comments
		Good	Needs Maintenance	
- Well cap integrity	Semiannual	✓		
- Water drainage	Semiannual	✓		
- Well locks	Semiannual	✓		
<b>Groundwater Monitoring Wells and Piezometers</b>				
- Riser condition (i.e. paint, integrity, cover)	Semiannual	✓		
- Identification number legibility	Semiannual	OK		
- Concrete collar condition	Semiannual	✓		
- Traffic protection (i.e. bollards)	Semiannual	✓		
- Well cap integrity	Semiannual	✓		
- Water drainage	Semiannual	✓		
- Well locks	Semiannual	✓		
<b>Stormwater Runoff Control</b>				
- Water drainage	Semiannual	✓		
- Culvert and trench drainage	Semiannual	✓		
- Riprap	Semiannual	✓		
- Erosion	Semiannual	✓		
- Settlement	Semiannual	✓		

## Notes:

(a) Frequency indicates minimum requirements. Semiannual inspections will be conducted in March and September, except for the stormwater runoff control, which will be inspected before the October rainy season and in May at the end of the rainy season. Inspections also are required after significant storm events and as needed.

(b) Every 5 years from the previous surveying and iso-settlement mapping.

## Abbreviations and Acronyms:

N/A - not applicable

*Handwritten signature*  
8-12-05



TABLE 4-1

## SITE 1 LANDFILL GENERAL INSPECTION CHECKLIST AND FREQUENCY

Item	Frequency <sup>a</sup>	Condition		Comments
		Good	Needs Maintenance	
<b>General Site Conditions</b>				
- Perimeter Road	Semiannual	✓		
- Landfill signs	Semiannual	✓		
- Inspect for nesting owls and burrowing animals	Semiannual	✓		
- Security lighting and gates	Semiannual	✓		
- Riprap	Semiannual	✓		
- Rapitor purchases	Semiannual	✓		
<b>Landfill Cap</b>				
- Re-settlement and surveying landfill settlement markers	Every 5 Years <sup>b</sup>	✓		
- Erosion	Semiannual	✓		
- Visual observations of settling (i.e., cracking, sloughing)	Semiannual	✓		
- Vegetation control and restoration	Semiannual	✓		
- Cap breaching	Semiannual	✓		
- Water drainage	Semiannual	✓		
<b>Landfill Gas Vents</b>				
- Rise condition (i.e., paint, integrity)	Semiannual	✓		
- Identification tag present	Semiannual	✓		
- Concrete collar condition	Semiannual	✓		
- Screen condition	Semiannual			
<b>Landfill Gas Monitoring Wells</b>				
- Rise condition (i.e., paint, integrity)	Semiannual	✓		
- Identification tag present	Semiannual	✓		
- Traffic protection (i.e., bollards)	Semiannual	✓		
- Concrete collar condition	Semiannual	✓		
- Well cap integrity	Semiannual	✓		
- Water drainage	Semiannual	✓		
- Well locks	Semiannual			
<b>Collection Trench Wells</b>				
- Concrete collar condition	Semiannual	✓		
- Protective cover condition	Semiannual	✓		
- Identification number legibility	Semiannual	✓		

Site 1 Landfill Post-Closure Long Term Maintenance Plan

Former New Albany Solid Waste Landfill

DCN: FWSO-XAC-04-2000

C10136-0095, Revision 0.0

TABLE 4-1

## SITE 1 LANDFILL GENERAL INSPECTION CHECKLIST AND FREQUENCY

Item	Frequency <sup>1</sup>	Condition		Comments
		Good	Needs Maintenance	
- Well cap integrity	Semiannual	✓		
- Water drainage	Semiannual	✓		
- Well locks	Semiannual	✓		
- Groundwater Monitoring Wells and Piezometers	Semiannual	✓		
- Riser condition (i.e., paint, integrity, cover)	Semiannual	OK		
- Identification number legibility	Semiannual	✓		
- Concrete solid condition	Semiannual	✓		
- Traffic protection (i.e., bollards)	Semiannual	✓		
- Well cap integrity	Semiannual	✓		
- Water drainage	Semiannual	✓		
- Well locks	Semiannual	✓		
- Stormwater Runoff Control	Semiannual	✓		
- Water drainage	Semiannual	✓		
- Culvert and trench drainage	Semiannual	✓		
- Riprap	Semiannual	✓		
- Erosion	Semiannual	✓		
- Settlement	Semiannual	✓		

SCHEDULED SITE INSPECTION

## Notes:

- (a) Frequency indicates minimum requirements. Semiannual inspections will be conducted in March and September, except for the stormwater runoff control, which will be inspected before the October rainy season and in May at the end of the rainy season. Inspections also are required after significant storm events and as needed.

- (b) Every 3 years from the previous surveying and iso-settlement mapping

## Abbreviations and Acronyms:

N/A - not applicable


  
11/14/05

## **2005 SANTA CLARA COUNTY LANDFILL INSPECTION REPORTS**

CALIFORNIA INTEGRATED WASTE  
MANAGEMENT BOARD

Page: 61

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE OF CALIFORNIA CODE OF REGULATIONS (CCR) UNDER THE STANDARDS BELOW. ARE CONSIDERED IN COMPLIANCE UNLESS OTHERWISE MARKED WITH ONE OF THE FOLLOWING: "V" VIOLATION, "A" AREA OF CONCERN, "N/A" NOT APPLICABLE

DRAINAGE AND EROSION CONTROL				A. HANSEN
20826 - DRAINAGE/EROSION CONTROL				
21150 - DRAINAGE/EROSION CONTROL				
MONITORING AND CONTROL SYSTEMS				
20790 - LEACHATE CONTROL				
20830 - LITTER CONTROL				
21160 - LEACHATE CONTROL /LEACHATE CONTACT				
SECURITY				
20630 - SITE SECURITY				
21135 - SECURITY AT CLOSED SITES				
21137 - STRUCTURE REMOVAL				
RECORDS				
21130 - EMERGENCY RESPONSE PLAN				
21179 - RECORDING				
21200 - CHANGE OF OWNERSHIP				
CLOSURE PLANS				
21860 - CERTIFICATION OF CLOSURE				
21863 - REVISION OF APPROVED PLANS FOR C/PD MAIN T				
OTHER				

COMMENTS (USE CHWMB 3 FOR ADDITIONAL SPACE)

SITE 1: Site inspection revealed no problem areas. Site looked excellent.

**SITE 22:** No deficiencies to report.

DOCUMENTS RECEIVED SINCE LAST INSPECTION 11/17/04:

March 2004 Site 1 Sampling Event, Former NAS Maffett Field

May 2004 Site 1 Sampling Event, Former NAS Moffett Field

## Closed Disposal Site Inspection Report

Enforcement Agency: Santa Clara County, Department of Environmental Health - Local Enforcement Agency

Page 1 of 1

FACILITY FILE NUMBER <b>43-AA-0005</b>	PROGRAM CODE LOCAL = L	INSPECTION DATE <b>5/18/05</b>	TIME IN <b>10:00 AM</b>	INSPECTION TIME <b>2 hrs.</b>
FACILITY NAME <b>NASA/MOFFETT FIELD - Sites 1 &amp; 22 Landfills</b>			TIME OUT <b>12:00</b>	RECEIVED BY (OPERATOR) <i>Ray J. Minichew</i>
FACILITY LOCATION <b>Moffett Field, CA</b>			OWNER <b>United States Government</b>	ALSO PRESENT <b>Bill Ogle &amp; David Smith</b>
INSPECTOR <b>Chris Rummel, R.E.H.S.</b>			INSPECTOR SIGNATURE <i>Chris Rummel</i>	

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 36 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 27 CALIFORNIA CODE OF REGULATION (CCR).

THE STANDARDS BELOW ARE CONSIDERED IN COMPLIANCE UNLESS OTHERWISE MARKED WITH ONE OF THE FOLLOWING: V = VIOLATION A = AREA OF CONCERN NA = NOT APPLICABLE

POST-CLOSURE	V	A	NA
20750 - SITE MAINTENANCE			
21180 - POST-CLOSURE MAINTENANCE			
21190 - POST-CLOSURE LAND USE			
GAS MONITORING AND CONTROL SYSTEMS			
20918 - EXEMPTIONS			
20919 - GAS CONTROLS			
20919.5 - EXPLOSIVE GAS CONTROL			
20921 - GAS MONITORING/CONTROL			
20923 - MONITORING			
20925 - PERIMETER MONITORING NETWORK			
20931 - STRUCTURE MONITORING			
20932 - MONITORED PARAMETERS			
20933 - MONITORING FREQUENCY			
20934 - REPORTING			
20937 - CONTROL			
GRADING/FINAL COVER			
20650 - GRADING OF FILL SURFACES			
21140 - FINAL COVER			
21142 - FINAL GRADING			
21145 - SLOPE STABILITY			

DRAINAGE AND EROSION CONTROL	V	A	NA
20620 - DRAINAGE/EROSION CONTROL			
21150 - DRAINAGE/EROSION CONTROL			
MONITORING AND CONTROL SYSTEMS			
20790 - LEACHATE CONTROL			
20830 - LITTER CONTROL			
21160 - LF GAS CONTROL/LEACHATE CONTACT			
SECURITY			
20530 - SITE SECURITY			
21135 - SECURITY AT CLOSED SITES			
21137 - STRUCTURE REMOVAL			
RECORDS			
21130 - EMERGENCY RESPONSE PLAN			
21170 - RECORDING			
CLOSURE PLANS			
21200 - CHANGE OF OWNERSHIP			
21880 - CERTIFICATION OF CLOSURE			
21890 - REVISION OF APPROVED PLANS FOR CFC MAINT			
OTHER			

COMMENTS (USE CWMMS 9 FOR ADDITIONAL SPACE)

SITE 1: Site inspection revealed no problem areas. Site looked excellent.

SITE 22: No deficiencies to report.

## DOCUMENTS RECEIVED SINCE LAST INSPECTION 2/23/05:

March 18, 2005 Final Site 1 Landfill Post-Closure Long-Term Monitoring Plan Rev.0

March 18, 2005 Final Site 1 Landfill Post-Closure Long-Term Maintenance Plan Rev.0

March 31, 2005 Groundwater Report Operable Unit 1, Rev. 0

## Closed Disposal Site Inspection Report

Enforcement Agency: Santa Clara County, Department of Environmental Health - Local Enforcement Agency

Page 1 of 1

FACILITY FILE NUMBER/ID# <b>43-AA-0005</b>	PROGRAM CODE LOCAL = L STATE = S LOCAL = L	INSPECTION DATE DD <b>8/24/05</b> YY	TIME IN <b>10:00 AM</b> TIME OUT <b>12:00</b>	INSPECTION TIME
FACILITY NAME <b>NASA/MOFFETT FIELD - Sites 1 &amp; 22 Landfills</b>			RECEIVED BY (OPERATOR) <b>Gary Munkawa</b> OWNER <b>United States Government</b>	
FACILITY LOCATION <b>Moffett Field, CA</b>			INSPECTOR SIGNATURE <i>Chris Rummel</i>	
INSPECTOR <b>Chris Rummel, R.E.H.S.</b>			ALSO PRESENT <b>Bill Ogle, David Smith, Quan Mai</b>	

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 27 CALIFORNIA CODE OF REGULATION (CCR)

THE STANDARDS BELOW ARE CONSIDERED IN COMPLIANCE UNLESS OTHERWISE MARKED WITH ONE OF THE FOLLOWING: V = VIOLATION A = AREA OF CONCERN NA = NOT APPLICABLE

POSTCLOSURE	V	A	NA
20750 - SITE MAINTENANCE			
21180 - POSTCLOSURE MAINTENANCE			
21190 - POSTCLOSURE LAND USE			
<b>GAS MONITORING AND CONTROL SYSTEMS</b>			
20918 - EXEMPTIONS			
20919 - GAS CONTROLS			
20919.5 - EXPLOSIVE GAS CONTROL			
20921 - GAS MONITORING/CONTROL			
20923 - MONITORING			
20925 - PERIMETER MONITORING NETWORK			
20931 - STRUCTURE MONITORING			
20932 - MONITORED PARAMETERS			
20933 - MONITORING FREQUENCY			
20934 - REPORTING			
20937 - CONTROL			
<b>GRADING/FINAL COVER</b>			
20650 - GRADING OF FILL SURFACES			
21140 - FINAL COVER			
21142 - FINAL GRADING			
21145 - SLOPE STABILIZATION			

DRAINAGE AND EROSION CONTROL	V	A	NA
20820 - DRAINAGE/EROSION CONTROL			
21150 - DRAINAGE/EROSION CONTROL			
<b>MONITORING AND CONTROL SYSTEMS</b>			
20730 - LEACHATE CONTROL			
20830 - LITTER CONTROL			
21160 - LF GAS CONTROL/LEACHATE CONTACT			
<b>SECURITY</b>			
20930 - SITE SECURITY			
21135 - SECURITY AT CLOSED SITES			
21137 - STRUCTURE REMOVAL			
<b>RECORDS</b>			
21130 - EMERGENCY RESPONSE PLAN			
21170 - RECORDING			
21200 - CHANGE OF OWNERSHIP			
<b>CLOSURE PLANS</b>			
21880 - CERTIFICATION OF CLOSURE			
21890 - REVISION OF APPROVED PLANS FOR CIPC MAINT			
<b>OTHER</b>			

COMMENTS (USE CWMG 3 FOR ADDITIONAL SPACE)

**SITE 1:** Site inspection revealed no problem areas. Site looked excellent.

Gas vents were tested during the inspection using a portable methane gas detector with the following results:

GV-3 = 0 ppm, GV-4 = 0 ppm, GV-5 = 7% gas, GV-7 = 44% gas, GV-8 = 40% gas, GV-10 = 60% LEL, GV-11 = 38% gas, GV-12 = 1 to 3% LEL.

**SITE 22:** No deficiencies to report.

Perimeter methane gas monitoring well in the perimeter road, LGMW-3 was found to have a 3% gas reading when stabilized, with an initial spike during purging at ranges up to 20% gas by volume. Previous testing of this well by Foster Wheeler indicated the same reading of 3% gas. The limit for perimeter gas migration is 5% gas at the facility boundary, which in this case is not at the perimeter of the waste, but rather the property boundary. Thus, reading of this well above 5% gas are not necessarily a violation.

Note: Semi-annual monitoring plan with sampling in February and August is appropriate.

**DOCUMENTS RECEIVED SINCE LAST INSPECTION 5/18/05:**

June 22, 2005 Site 1 Landfill - 2004 Annual Report-Draft

Aug. 12, 2005 Site 22 Post Construction Operations, Maintenance, and Monitoring Plan Addendum - Rev. 0 -Draft

## Closed Disposal Site Inspection Report

Enforcement Agency: Santa Clara County, Department of Environmental Health - Local Enforcement Agency

Page 1 of 1

FACILITY FILE NUMBER 43-AA-0005	PROGRAM CODE LOCAL=L STATE=S LOCAL=L	INSPECTION DATE MM DD YY 11/16/05	TIME IN 10:00 AM	INSPECTION TIME
FACILITY NAME NASA/MOFFETT FIELD - Sites 1 & 22 Landfills			RECEIVED BY (OPERATOR) Gary Murekawa	OWNER United States Government
FACILITY LOCATION Moffett Field, CA			ALSO PRESENT Bill Ogle, David Smith	
INSPECTOR Chris Rummel, R.E.H.S.		INSPECTOR SIGNATURE <i>Chris Rummel</i>		

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 27 CALIFORNIA CODE OF REGULATION (CCR).

THE STANDARDS BELOW ARE CONSIDERED IN COMPLIANCE UNLESS OTHERWISE MARKED WITH ONE OF THE FOLLOWINGS: V = VIOLATION A = AREA OF CONCERN NA = NOT APPLICABLE

POSTCLOSURE	V	A	NA
20790 - SITE MAINTENANCE			
21180 - POSTCLOSURE MAINTENANCE			
21190 - POSTCLOSURE LAND USE			
GAS MONITORING AND CONTROL SYSTEMS			
20916 - EXEMPTIONS			
20918 - GAS CONTROLS			
20919.5 - EXPLOSIVE GAS CONTROL			
20921 - GAS MONITORING/CONTROL			
20923 - MONITORING			
20925 - PERIMETER MONITORING NETWORK			
20931 - STRUCTURE MONITORING			
20932 - MONITORED PARAMETERS			
20933 - MONITORING FREQUENCY			
20934 - REPORTING			
20937 - CONTROL			
GRADING/FINAL COVER			
20950 - GRADING OF FILL SURFACES			
21140 - FINAL COVER			
21142 - FINAL GRADING			
21145 - SLOPE STABILITY			

DRAINAGE AND EROSION CONTROL	V	A	NA
20820 - DRAINAGE/EROSION CONTROL			
21150 - DRAINAGE/EROSION CONTROL			
MONITORING AND CONTROL SYSTEMS			
20790 - LEACHATE CONTROL			
20830 - LITTER CONTROL			
21160 - LF GAS CONTROL/LEACHATE CONTACT			
SECURITY			
20530 - SITE SECURITY			
21135 - SECURITY AT CLOSED SITES			
21137 - STRUCTURE REMOVAL			
RECORDS			
21130 - EMERGENCY RESPONSE PLAN			
21170 - RECORDING			
21200 - CHANGE OF OWNERSHIP			
CLOSURE PLANS			
21880 - CERTIFICATION OF CLOSURE			
21890 - REVISION OF APPROVED PLANS FOR C/P/C MAINT			
OTHER			

COMMENTS (USE CWMBS 3 FOR ADDITIONAL SPACE)

SITE 1: Site inspection revealed no problem areas. Site looked excellent.

SITE 22: No deficiencies to report.

DOCUMENTS RECEIVED SINCE LAST INSPECTION 8/24/05:

None

## **APPENDIX H**

### **CORRESPONDENCE**





Alan C. Lyod  
Secretary for  
Environmental  
Protection

# California Regional Water Quality Control Board

## San Francisco Bay Region

1515 Clay Street, Suite 1400, Oakland, California 94612  
(510) 622-2300 • Fax (510) 622-2460  
<http://www.swrcb.ca.gov/rwqcb2>



Arnold Schwarzenegger  
Governor

Date: MAY 12 2005  
File No.: 2189.8009 (AVC)

Base Realignment and Closure  
Program Management Office West  
Attn: Mr. Richard Weissenborn, Lead RPM  
1230 Columbia Street, Suite 1100  
San Diego, CA 92101-8517

Subject: Concurrence on the Final Site 1 Landfill Post-Closure Long-Term Monitoring Plan, Former Naval Air Station Moffett Field, Moffett Field, California, Revision 0, dated March 18, 2004

Dear Mr. Weissenborn:

Thank you for the Final Site 1 Landfill Post-Closure Long Term Monitoring Plan, Former Naval Air Station Moffett Field, Moffett Field, California, Revision 0, dated March 18, 2005, received on March 21, 2005, by the San Francisco Bay Regional Water Quality Control Board (Water Board). Water Board staff has thoroughly reviewed the final document and this letter presents our concurrence on the long term monitoring plan.

Please don't hesitate to call me at (510) 622-2353 or E-mail to [AConstantinescu@waterboards.ca.gov](mailto:AConstantinescu@waterboards.ca.gov) if you would like to discuss this letter further.

Sincerely,

Adriana Constantinescu, PG  
Project Manager – Moffett Field

cc: Ms. Lida Tan, Project Manager EPA  
Ms. Sandy Olliges, Env. Services Director, NASA  
Mr. Bob Moss, RAB Chairperson

C:\Moffett\MoffettFieldSite1\Final\LTMPConLetter.doc





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
75 Hawthorne Street  
San Francisco, CA 94105

May 26, 2005

Mr. Rick Weissenborn  
BRAC Environmental Coordinator  
Southwest Division  
Naval Facilities Engineering Command  
BRAC Operation Office  
1230 Columbia Street, Suite 1100  
San Diego, CA 92101-0961

**RE: EPA Concurrence - Final Site 1 Landfill Post-Closure Long-Term Monitoring and Maintenance Plans dated March 18, 2007, Former Moffett Federal Airfield, Moffett, California**

Dear Mr. Weissenborn:

The U.S. Environmental Protection Agency (EPA) received the Final Site 1 Landfill Post-Closure Long-Term Monitoring and Maintenance Plans dated March 18, 2005. EPA comments on the draft reports (September 14, 2004) have been adequately discussed and addressed in the draft final documents. EPA have no more comments on the subject reports.

If you have any questions, please feel free to call me at (415) 972-3018, or contact me by email at [tan.lida@epa.gov](mailto:tan.lida@epa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Lida Tan", is written over the typed name.

Lida Tan  
Remedial Project Manager  
Superfund Federal Facility Branch  
EPA Region 9

cc:

Ms. Adriana Constantinescu  
Regional Water Quality Control Board  
San Francisco Bay Region

1515 Clay Street, Suite 1400  
Oakland, CA 94612

Mr. Don Chuck  
NASA M/S 218-1  
Ames Research Center  
Moffett Field, CA 94035

✓ Ms. Mary Parker  
Remedial Project Manager  
Southwest Division  
Naval Facilities Engineering Command  
BRAC Operation Office  
230 Columbia Street, Suite 1100  
San Diego, CA 92101-0961

Mr. Chris Rummel  
Department of Environmental Health  
County of Santa Clara Environmental Resources Agency  
P.O. Box 28070  
San Jose, 95159-4206

Mr. Tom Mohr  
Santa Clara Valley Water District  
5750 Almaden Expressway  
San Jose, CA 95118-3686

107AC OFFICE  
2005 JUN -6 A 6 13